OUTLINES OF PSYCHIATRY

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OUTLINES

OF

PSYCHIATRY

BY

WILLIAM A. WHITE, A.M., M.D.

TWELFTH EDITION

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PREFACE TO THE TWELFTH EDITION

The present edition has been very extensively revised. A large amount of new material has been added, together with a considerable number of cuts and photographs. All in all the book has been greatly amplified and extended. This I have felt I could do for the first time, since the publication of my Lectures in Psychiatry takes care of the field for the beginning student, social worker, and interested layman. The Outlines, therefore, may properly evolve into a more elaborate type of textbook.

W. A. W.

Saint Elizabeths Hospital,
Washington, D. C.,
February 6, 1929.

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PART I
GENERAL

OUTLINES OF PSYCHIATRY

CHAPTER I.

Descriptive Psychology.

Before undertaking to discuss mental diseases it is desirable to define briefly the psychological terms which it will be necessary to employ.

The body is made up of a great number of organs each one of which has certain functions: The kidney to secrete urine, the lungs to carry on respiration, the heart to force blood through the vessels, the stomach and intestines to digest and absorb food. Definite as is the function of each of these organs its action must be timed in response to certain conditions and in relation to the other organs of the body or it does not serve its purpose in the individual economy. The stomach must secrete its juices when food is introduced, the bladder contract when urine is to be expelled, the active brain must be supplied with an increased amount of blood, the kidneys and the skin must act harmoniously together to excrete certain substances, the respirations increase on physical exertion and so on indefinitely. It is the function of the nervous system to so organize the activities of the several organs that they are rightly timed and properly adjusted in relation one to another. This is the main function of the simpler reflex arcs, chiefly belonging to the vegetative nervous system, the spinal cord and medulla.

The upper cerebral pathways of the cortex that constitute the physical basis of mind have quite a different series of functions. These functions are so to regulate and control the actions of the individual as a whole to best serve his interests in his relations with his environment.

In order to do this the cerebral cortex must be brought into relation with the environment through the sense organs, these

relations must be coördinated and the resultant functioning is designated as conduct. To illustrate: A man standing in the middle of the street sees a runaway team dashing towards him. His sensory pathways, figuratively speaking, carry to his mind the information of the presence of the runaway team, its distance from him, the distance to the sidewalk from where he stands and many other things. His mind assimilates all these facts and by a process of reasoning the conclusion is reached that safety lies in his immediately gaining the sidewalk which is in front of him. The necessary volitional processes are initiated and thus the actions of the individual are so related to the conditions in his environment as to conserve his best interests: in this case to save his life.

In order that the adjustment of the individual to his environment could take place three things were necessary: (1) Experience of the environment must be gained. (2) This experience must be organized, associated and brought into relation with previous experiences. (3) It must be transformed into the appropriate actions. The first of these functions is made possible by the group of sensory receptors and their pathways to the cortex. These collectively may be called the *sensorium.* The second function organizes the experiences, and the resultant function may be called the *intellect.* The third discharges the energy brought in through the sensory pathways, arranged and coördinated for purposeful activities, through motion or glandular activity. These are collected functions of what may be termed the *motorium.* In the language of the psychology which considers each of them as faculties of the mind the function of the sensorium is *perception,* of the intellect *thinking,* and of the motorium *volition.* (See Fig. 1.)

With this view of the function of consciousness as a guide the separate processes may now be described more in detail.

As has been seen all contact with the environment must come through the sense organs; it follows of necessity that sensations play an important part in making up the content of consciousness. These *sensations* are the result of the stimulation of the specialized sensory end organs, and from the viewpoint of descriptive psychology comprise the unanalyzable material out of which mental functioning is composed. Light energy coming through the

eye gives the sensations of light of different colors and intensities, the ear sensations of sound of varying qualities and loudness and so on in each sensory realm, the sensations received being variable both qualitatively and quantitatively. Some two dozen or more sensory receptors are known, each responding to specific types of stimuli,[1] and include, besides the classical five of the organs of sight, hearing, smell, taste, and touch those of pressure, pain, heat, cold, the end organs of tendon, joint and muscle sensibility, of the static and equilibratory sensations from the

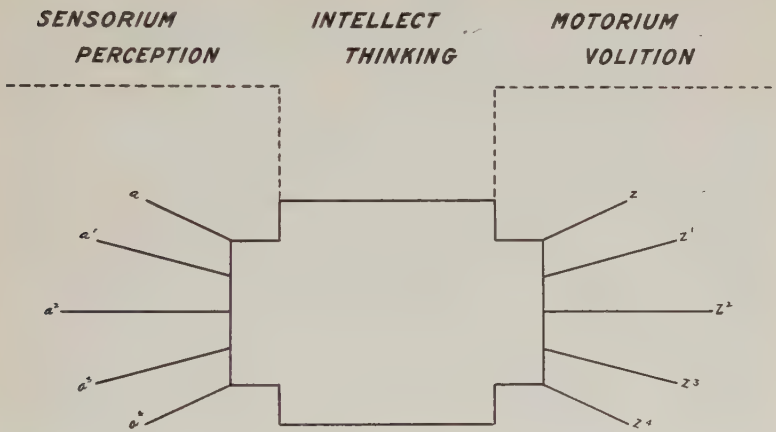


FIG. 1. a, a^1, a^2, a^3, a^4, represents the afferent peripheral nervous system, the avenues for conveying sensory impulses. z, z^1, z^2, z^3, z^4, represents the efferent peripheral nervous system, the avenues through which motor responses travel.

semicircular canals, and certain visceral receptors which give rise to certain well defined but generally indefinitely located sensations such as hunger, thirst, nausea, respiratory, circulatory and sexual sensations, sensations of pain and distention, etc. All these receptors are classed by SHERRINGTON[2] in three types: 1. the *extero-ceptors* or the sense organs ordinarily so-called, that respond to stimulations arising from the objects of the outside environment: 2. the *intero-ceptors* which are located upon the inner surfaces of the organism and respond to stimulations from

[1] Herrick, C. Judson: An Introduction to Neurology. Philadelphia, W. B. Saunders Company, 3rd Ed., 1922.

[2] The Integrative Action of the Nervous System.

those portions of the environment which have been, as it were, temporarily included in the organism: 3. the *proprio-ceptors* which respond to stimulations arising within the organism itself such as from muscle and joint activities.

If we will stop and consider for a moment, however, it will at once be seen that these elemental sense experiences, like atoms, cannot exist alone and uncombined: That sensations of light, sound, pain, coldness, can never as such go to make up a conscious state. In front of me as I write is something which produces the sensation of a variously shaded, round patch of yellow, but even while looking at it I know much more of it than simply that it is a patch of yellow: I recognize it as an orange. What has been added to the visual sensations of roundness and yellowness to produce this result? Just this. Many times in the past the same sort of light stimuli have caused sensations of roundness and yellowness and many times in connection with these sensations other kinds of stimuli have caused touch, taste, and smell experiences and this combination I have learned to call orange. So when the sensations of roundness and yellowness are received they are associated in the brain with those other sensory elements of touch, taste, and smell, which have occurred before. The association of the previous with the present sensory elements causes me to recognize the round patch of yellow—not solely as a patch of yellow—but as an orange. To this process of forming a mental image of an object presented to the senses is given the name *perception.*

It is this process of perception which furnishes to the individual the knowledge of his environment which by association with the knowledge gained in the past leads to appropriate *actions.* This process of association is an association with *ideas* which may be said to be images of objects formed in the mind but not presented to the senses at the time. The only difference then between percepts and ideas is the presence in the former of sensory elements.

The process of the relation of percept to ideas and the association of ideas one with another or in general terms this process of the assimilation and rearrangement of the materials of knowledge furnished by the senses with the materials already present in consciousness is the process of *thinking.* When from the as-

sociation of two or more ideas there issues forth a new and different idea the process which produces this result is the process of *reasoning* and the new idea is termed a *judgment*.

Having obtained experience of the environment by the process of perception, and having assimilated the various percepts, reasoned regarding them and reached certain judgments, the next step in the order of events is the release of appropriate actions. If the reasoning is at all complicated there are usually several judgments formed, each one of which may tend to express itself in an appropriate action, the strongest one finally, however, succeeding in expressing itself. This conflict of tendencies has been described as the "battle of motives" by ZIEHEN who gives the following illustration:

"I see a rose in a strange garden (stimulus and sensation). A long series of ideas is aroused by the stimulus and the visual sensation of the flower (idea-association). For instance, the memory of the rose's fragrance comes to mind, then I think how well it would look in my room, that it is the property of another, that plucking it would be punishable, and so on. Only after the whole series of presentations has passed before the mind does action follow, and whether I pluck the flower or go my way without it will depend upon the strength and intensity of the conquering idea."

The conscious realization in action of the strongest motive is the process of *volition* and is accompanied by a feeling of freedom to choose which motive shall dominate. The sum total of the actions of the individual is known as *conduct*.

All of these various processes which have been described must of course be conceived of as taking place in conjunction with certain physiological processes in the cells and fibers of the cerebral cortex. These physiological processes, here as elsewhere, involve changes in the energy and the material substance of cells and fibers and so when a certain mental process has occurred once accompanied by its correlative physiological process the changes in nerve cells and fibers will have left such an impress that a subsequent process of this sort will occur more readily. In other words a mental process having once occurred tends to recur in the same way when the same conditions are repeated. This tendency is the physiological basis of conscious *memory*,

which psychologically may be said to be the recurrence to consciousness of a previous experience and the recognition of it as having occurred before.

All mental processes, besides these special qualities which characterize them, are accompanied by certain general conditions of consciousness known as *affects* which are pleasant or unpleasant, pleasurable or painful, agreeable or disagreeable, and like sensations are unanalyzable, elemental constituents of consciousness. These pleasurable or painful conscious states arise as the result of the interaction between the individual and the environment and are known as *feelings* when this interaction is relatively simple and direct, *i.e.,* a shrill whistle may be accompanied by a feeling that is disagreeable to the point of being actually painful. When the interaction is relatively more complex and indirect there may result the state of consciousness known as an *emotion, i.e.,* the bell of a locomotive and the hiss of an air brake is heard coupled with screams and cries of pain. The mind at once pictures to itself an accident and the emotion of fear arises in consciousness. If the interactions are still more complex and indirect the resultant phenomena are termed *sentiments,* such as honor, patriotism, etc.

An intense emotion of relatively short duration is spoken of as a *passion,* such as anger, terror, revenge, despair, triumph. A moderate emotion of relatively long duration is spoken of as a *mood,* such as despondent, optimistic, contented, blaséness. When the mood is continuous and dominates the personality it becomes the quality which is called *temperament.* Thus we speak of sanguine, pessimistic, suspicious temperaments.

From this description of mental functions it will be seen that they are most intimately connected, in fact they are not separate and distinct in any sense, but only parts of a large whole. The old psychology conceived of mind as composed of a number of cubby holes in each one of which was pigeon-holed a special faculty, feeling, thinking, volition, each one of which was quite as distinct from the others as this illustration implies. This conception has become inadequate and false. The "faculty concepts"[3] are conceived of as what they really are, "class designa-

[3] Wundt, Wilhelm: Principles of Physiological Psychology. Translated by Edward Bradford Titchener, Vol. I. New York, The Macmillan Co., 1904.

tions of certain departments of the inner experience," and not "forces, by whose means the various phenomena are produced." "Objectively, the individual mental processes can be regarded only as inseparable elements of interconnected wholes." Mental processes, from their incidence in sensations to the release of the motor responses constituting conduct are conceived to have as their physical substratum a continuous neural process. The process, although differently named in different parts of its course for convenience of designation, is a continuous one.

CHAPTER II.

Genetic Psychology.

In the last chapter a number of psychological terms such as sensation, perception, emotion, etc., were defined. Not so many years ago psychology occupied itself largely in efforts to formulate more or less refined definitions of such terms. Those were the days when text books of psychology were written in the library with little or no first hand knowledge. In later years, however, owing largely to the necessity for the development of objective methods by the animal psychologists, because animals cannot tell what is going on in their minds, psychological problems have been reduced to problems of behavior. That is, instead of manufacturing hairsplitting definitions of what constitutes a sensation the psychologists try to answer the question "What is the person doing?" or leastwise, trying to do.

From this behavioristic standpoint a proper description of my conduct at the present time would be included in the statement that "I am writing a book" rather than in a statement of the particular sensations, perceptions, and volitions which are taking place in me.

A still further implication of this way of looking at psychic facts is that I am writing a book because, of all the motives for conduct that may be seeking expression at this particular moment, that is the strongest. In other words I "wish" to write a book and so the "wish" has replaced the "sensation" as the ultimate psychological unit.

If now it be further asked why I wish to write a book? that question can only be answered by an examination of my past such as will reveal the elements therein which have led to this particular conduct. Such an examination alone will give the explanation of my conduct by furnishing the chain of causes back of it and such a study in the psychological realm is a study in genetic psychology.

Genetic psychology gives the same value to mind that anatomy and physiology do to the body and like them recognizes that present forms can only be explained by the past. In other words

the mind has a history just as the body has: it has its embryology and its comparative anatomy, and a study of the development of the mind in the individual, and its degree of development, likenesses and differences in different races throws the same sort of light upon psychological facts as does the study of embryology and comparative anatomy upon the facts of anatomy and physiology.

I will very briefly outline the most important feature for our purposes in the developmental history of the individual at the psychological level.

I will begin with the baby in its mother's uterus. The state of mind, if the word mind can properly be used here as meaning the resultants of all those tendencies which involve the individual as a whole, may be properly described as one of unconditioned omnipotence.[1] Every function, eating, breathing, etc., being performed for it by its mother no desires can arise because everything is furnished before a need for it is permitted to exist. With every wish gratified it is therefore in a position of omnipotence. All this is changed, however, at the moment of birth. From this time forth the baby must eat for itself, breathe for itself and perform many other functions for itself. From now on desire begins to play a large part in the baby's psychology. If dinner is delayed the baby is hungry and by that fact alone its omnipotence is imperiled. The household, however, is all intent upon serving the baby and the cry of hunger is immediately quieted by giving it food, but as the days go on, as the sense organs develop and its relations to the environment require more and more complex adjustments no amount of watchfulness on the part of the family can forestall all of its desires. Food is not available the instant it is wanted, light and sound invade at times of fatigue, and so desire comes more and more into evidence.

The discrepancy between desire and attainment is, however, not very great because all through the first months and even years the family try to provide for all of the child's needs, but the discrepancy tends constantly to increase as the years go on and as the growing individual comes to touch reality at more and more numerous points. This lack of satisfaction, desire, or wish is

[1] Ferenczi, C.: Contribution to Psycho-Analysis. Boston, Richard Badger.

thus the motive force behind conduct forcing the individual along the path that will bring an end to the craving. As desire, through the years, becomes more and more ambitious and its satisfaction more and more difficult, that satisfaction has to be postponed to an ever receding future. As an adult if he is hungry he cannot get food by just wishing for it as he did when a baby, but must buy it and in order to do this must earn money and all the activities implied in these two statements must be pursued along lines laid down by social custom.

This discrepancy between desire and attainment leads to conduct which has the object of neutralizing the desire but with each success new desires arise so that final success is impossible. This *conflict* between desire and attainment is at the very basis of mental life and the fundamental fact of consciousness.

Confronted by the problem presented by the discrepancy between desire and attainment the individual may seek the solution in one of two ways. He may undertake to *do* the various things which will bring about a satisfaction of his desire or he may *phantasy* that it is satisfied. In the first case the thinking which controls his action is dominated by the *reality motive,* that is, it is a clearly conscious voluntary effort at efficient action. The thinking which controls the dreaming is dominated by the *pleasure-pain motive* which shrinks from the effort necessary to action and escapes it by wish-fulfilling phantasies. Thus the individual retains the ability to immediately satisfy any desire as he could when an infant. Growing up, however, involves the relinquishment of immediate satisfaction, or more technically its *repression* and the substitution of a more complicated procedure. Instead of the sequence hunger-food there comes about the sequence hunger-work-money-food.

This process of repression is constantly crowding material into the *unconscious*, that region which constitutes the historical past of the psyche, the region of methods of reaction which have been abandoned for something better as development proceeded.[2] This region of the unconscious is of great importance to psychiatry because out of it come the motives for conduct which is so gro-

[2] For a fuller discussion of these mechanisms see the author's "Mechanisms of Character Formation." New York, The Macmillan Company, 1916.

tesque as to be described as unpsychological because the motives are those which have been so long since abandoned as conscious causes of conduct and when they arise from the unconscious are not recognized.

At the psychological level we can recognize as this process of development is going on with its conflicts, repressions, and the ever increasing realm of the unconscious, two fundamental and controlling groups of desires. The one group which has as its goal *self-preservation* and of which hunger is the type, and the other group which has as its goal *race-preservation* and of which the sexual relation is the type. The energy which drives to these two goals may be termed the *libido,* that component which drives toward the self-preservation goal would then be the *nutritive libido* and that component which drives towards the race-preservative goal would be the *sexual libido.* Self-preservation and race-preservation are in fundamental conflict. The first implies *keeping,* the second *giving.* Personal development involves certain sacrifices which the selfish are not equal to and so we see here one of the essential conflicts which lie at the basis of mental life.

One of the earliest problems presented by this conflict with which the infant must busy itself is learning to distinguish itself from the environment. The infant has no way of knowing that that thing out there is its foot and is an integral part of its body. This is well shown by the fact that it is at first treated just like anything else, the rubber ball for example. It is picked up and put in the mouth. It takes a long series of experiments to effect this distinction between the "I" and the "not-I," a series in which numerous painful contacts with the objects surrounding it play a considerable part. In the course of learning this distinction, however, there goes along a tendency to give personal qualities—its own—to every object until experiment proves this unwarranted—and so the child's interest is led from object to object, from person to person, in a manner that makes for an ever increasing knowledge of the environment, objective and personal.

This drafting of interest—the libido—first in one direction and then in another is characteristic of the young. As the years go by, however, the interest tends to become confined to more and

more definite directions and objects and it is this restriction of the possibilities which is the fundamental characteristic of old age.

The most important of the objects which arrest the attention of the infant's libido are the parents. The interest, libido, or we may say the love of the infant goes out at first indifferently to the individuals in its immediate environment and of course the first ones to attract it are the parents, or if one or both are dead or physically absent then those persons who occupy their places in the care of the infant. This is important because it depends upon the first experiences of love and affection, the original set, so to speak, how all future love experiences will be shaped. The father and mother stand as types in the infant mind against which all other persons with whom it comes in contact later are measured and compared. Not only this, but as the father and mother are male and female the child's earliest attractions tend to a differentiation based upon sex. The detachment of the libido from one person and its attachment to another, its drafting from one love object (person) to those throughout life always remains conditioned by the nature of its first attachment.

This determination of the libido first in one direction then in another, its deflection by new objects of interest follows a more or less definite course, with of course individual variations, and in its various tendencies is guided by the pleasure-pain motive, that is, it goes in the direction of pleasure and away from pain.

At first, particularly when the infant is engaged in differentiating itself from its environment, it is self-centered—*auto-erotic*—the interest is concentrated in its own sensations. Later when it begins to be capable of direction upon outside objects these objects are given its own characteristics, they are personified, a tendency which is given full play in the doll period. Later still this tendency to personification sinks into the background but perhaps is never wholly given up, at least it comes to the fore prominently in the state of intoxication or of anger, when the individual will break furniture, dishes, etc., as an expression of his feelings.

With regard to the personal attachments of the libido the same general course is pursued, namely from self outward into the world of reality. The child's first interest is in itself, it is narcissistic, then in other children most like itself—*narcissism*—and therefore of the same sex—*homosexual*. Gradually the interest

becomes capable of attachment to persons less and less like itself, that is of the opposite sex, and the foundation is laid for the specific activities of race-preservation, sexual congress, care and rearing of children, organization of the home, etc.

This very briefly is an account of the more important occupations of the libido which have to be borne in mind in the interpretative evaluation of psychological facts, and the understanding of the psychoses.

During this period of the wandering of the libido, its fixation upon love objects of greater and greater social value, the individual gradually learns to give up trying to bring things about by phantasy, to make things come true by thinking them true (the *all-powerfulness of thought*) which once worked when he was an infant, and comes more and more to be controlled by the reality motive for conduct—the seeing of things as they are rather than as they are wished to be. At the same time the progressive projection of more and more of the libido upon objects of interest other than the self, more particularly upon the objects (persons and institutions) of the social environment, results in that socialization of the instinctive cravings which makes the individual increasingly valuable as a member of the herd.

CHAPTER III.

The Nature of Mental Disorder.

It will be well at this point to dilate somewhat upon the general mental mechanisms outlined thus far with a view to gaining some insight into their nature. The results of mental functioning, in the most general terms, is to adapt the individual to his environment. It may therefore be considered as an adaptive mechanism. Bearing this characterization in mind we can best approach our subject by drawing a comparison between the problems of the internist on the one hand and the psychiatrist on the other. This comparison is very well put by Mercier:[1]

"When the student of medicine passes to the study of insanity, he crosses a scientific frontier, and enters an entirely new province of knowledge. Hitherto his purview has been limited to the processes that go on within the body and whatever references he had to make beyond that field were indirect and of secondary import. He needs to know the structure and functions of the several organs of the body, and, when any function is disordered, his calling is to take measures to readjust the bodily processes to one another so that they may work in harmony again. He has, in short, to maintain the organism in a fit state to do its work, whatever that may be, but with the doing of the work he has no concern. What the work may be, and with what efficiency it may be performed, is no concern of his, except in so far as these things may affect the general capacity of the organism to continue its existence. His position towards the patient is the position of the shipwright and the engineer towards the vessel on which they are engaged. Like them, he must be thoroughly acquainted with the structure and function of every part, and, like them, he must be upon the watch to repair the structure and correct the function, when the one is damaged or the other is at fault; but with the ship's course he has nothing to do. That is a matter altogether beyond his province. When the student oversteps the

[1] Mercier, Charles: A Text-Book of Insanity. New York, The Macmillan Co., 1902.

bounds of medicine to enter upon the study of insanity he leaves the engine-room for the quarter-deck. He is no longer directly concerned with the integrity of the structure or the efficiency of the engines. His function now is to set the ship's course, to note the way in which she comports herself in wind and weather, to study charts and tides, stars and clouds, to watch the barometer and to sound the lead, and generally to relinquish the observation of the ship herself, and to take up that of her relation to the world in which she moves. This is the function of the student of insanity—to study the individual, not *per se,* or *simpliciter,* but in relation to the world in which he exists, and in which he has to maintain his existence."

This illustration shows admirably the two different viewpoints. Like most such distinctions, however, the two positions must not be considered as mutually exclusive. It is true that the navigator is not primarily interested in the condition of the machinery yet if a breakdown occurs he cannot direct the ship. Similarly the engineer is not primarily interested in the course of the ship yet if she go upon the rocks his machinery may be hopelessly smashed. And so with the internist and psychiatrist. The psychiatrist is not primarily interested in the condition of the several organs yet an uremia from Bright's disease will produce most profound mental symptoms. The internist is not primarily interested in the mental adaptations yet they may fail so hopelessly as to produce organic disease.

The influence of the state of the different organs, particularly when diseased, upon mental functioning is a commonplace, while Pawlow[2] and Cannon[3] have shown most beautifully by their experiments how emotional (mental) states influence the bodily functions. Pawlow has shown that the physiological processes, the flow of saliva, could be brought about reflexly by stimuli of sight, sound, touch, variation of temperature, odor, provided only the stimulus had been applied in association with the giving of food. Having applied the stimulus originally thus associated the flow of saliva took place later although this association was left out. The physiological process had become organically linked

2 Yerkes and Morgulis: The Method of Pawlow in Animal Psychology. Psych. Bulletin, August 15, 1909.

3 Cannon, W. B.: Bodily Changes in Pain, Hunger, Fear and Rage. D. Appleton & Co., New York, 1915.

with the nervous stimulus, a *conditioned reflex* was established. This is a form of explanation which WATSON in particular has used to account for the overimportance which attaches to some ideas and feelings in the neuroses.

Here the much vexed question of the relation of mind to body is touched upon. An appeal to facts would show that the individual reacts to his milieu by the development of mechanisms that may include as parts the crass physical at one end, the refined psychic at the other. In these experiments of PAWLOW and CANNON, for example, mechanisms were created which acted as a whole. Like a watch, the parts were so intimately related that no portion could be set in motion without setting the whole going.

Even when a portion of the mechanism is destroyed the rest often still operates. The decerebrate dog turns and growls and bites at the fingers that hold his hind foot too roughly. Here there cannot be any possibility of the conscious psychic state of anger, as SHERRINGTON[4] says, "The action occurs, and plays the pantomime of feeling; but no feeling comes to pass."

The action of a complex mechanism as a whole is shown exceptionally well in a case reported by PRINCE.[5] The patient was subject to hay fever in a very severe form when exposed to roses. On one occasion a bunch of roses was unexpectedly produced from behind a screen. A severe attack followed with lachrymation, congestion of the mucosa, dyspnea, etc., although the roses, unknown to the patient, were paper ones. Here a pure psychic fact at one end of the scale produces a set of reactions which at the other gives rise to sensory, motor, vaso-motor, and secretory disturbances of a definitely somatic character. The important fact is that from the one to the other there is an uninterrupted chain of associations.

I have shown by these illustrations (and in Chapter I) that the adjustment of the individual as a whole to the environment is a mental function. Of course in general such an adjustment constitutes life itself, which as defined by SPENCER is "the continuous adjustment of internal relations to external relations." With

[4] Sherrington: The Integrative Action of the Nervous System. London, Archibald Constable & Co., 1906.

[5] Prince: The Unconscious, Jour. of Abnormal Psych., Vol. III, Nos. 4, 5 and 6; Vol. IV, No. 1.

the human being, however, the conditions are more complex. The adjustment is not limited in the passive way implied thus far. The individual assumes an active part towards his environment and endeavors to shape it in accord with a pattern partly conscious, partly unconscious. He tries to utilize the world of phenomena to suit his desires. Thus we find the individual not only acted upon by the environment and molded thereby but the environment reacted upon by the individual who endeavors to shape it to his needs. It is in these strivings that the unconscious tendencies play a continuous and a determining part.

It therefore follows that the most complete mental life is that which best adjusts the individual, both passively and actively in the sense just described, to the conditions of his environment: the best mind, that which is capable of the greatest latitude of adjustment, that enables the possessor to fill any position in life in which he may be placed. And conversely, the poor mind, the narrow mind, permits only a limited adjustment, either limited in the particular position of life occupied by the individual or limited as to its possibilities of scope, or both. The mental life is carried on within relatively narrow limits.

Whatever may be the limits of adjustability for the individual, any disorder of the mental processes must necessarily interfere with it. But as standards of comparison are relative we are forced to compare the individual's present condition with his condition in the past, with his usual condition. Thus all degrees of adjustability are found in different people and the most limited for the individual concerned may be normal. The interference with the adjustment of the individual with his environment is therefore a disorder in so far as it is a departure from his previous, his usual condition.

From the standpoint of disordered mental functioning, a psychosis is the expression on the part of the individual of his *type of reaction* to the conditions of his environment. The mental symptoms of the psychoses can be spoken of as a disease only in the sense that, and in so far as, they represent failure on the part of the individual, a lack of capacity for efficient adjustment. And inasmuch as it is the individual's adjustment to the other individuals who make up his social environment that constitutes his reactions as essentially human, it is disorder at this level of adjust-

ment, namely, the *social level* that essentially characterizes the psychoses.[6]

In thinking of mental disorders as results of failures to effect harmonious adjustment we must think in terms of attempts at repair, adjustment and compensations as we have learned to in the somatic diseases. We are familiar with these processes in general pathology. We know the processes of repair in tissues that have been injured, we are familiar with the way the organs adjust themselves to deforming forces, such as tumors; we know how defects such as a mitral insufficiency is compensated for by the hypertrophy of the heart muscle. So in the mental sphere we find persons struggling with conditions, trying to solve problems, sometimes succeeding, sometimes failing, sometimes compromising.

With the successes we have nothing to do; with the failures we must deal. In the efforts at adjustment the mental functions develop many ways of reacting. They defend the individual from disagreeable experiences often by forgetting them, *i.e.*, by thrusting them into the unconscious. For certain experiences that cannot be adequately adjusted to, certain compensatory reactions are evolved. The young woman disappointed in love is compensated by a life devoted to the service of others, or perhaps if the conflict is too severe she may develop a wish-fulfilling delirium and thus by a vicarious psychosis cause all her desires to be realized, or if the conflict reaches deeper she may deteriorate and develop delusions which express compensations more or less adequate in proportion to the degree of so-called dementia or of mental disintegration.

The important thing to remember is that no mental fact is fortuitous, it has its adequate mental explanation. Ideas cannot exist alone; what does exist is a mental state constellated by events in the environment and related to those events.

Every mental state is a synthesis and like a chemical compound may bear little relation in its qualities to the qualities of its constituent elements. Every mental state, too, reaches back through an immeasurable line of other mental states to the very dawn of

[6] For a fuller discussion of this point see the author's "Foundations of Psychiatry," Chap. V: The Region of Psychopathology. Nerv. and Ment. Dis. Monog. Series, No. 32.

consciousness. BERGSON[7] puts it thus—"Doubtless we think with only a small part of our past, but it is with our entire past, including the original bent of our soul, that we desire, will and act." There is nothing fortuitous in mental life. Determinism holds as definitely in the psychic as in the physical world and no mental fact can exist that has not its efficient cause in antecedent mental states. The sum total of the mental material constitutes the *personality.* All states of mind have efficient causes and are definitely associated with those causes in quite as inevitable a way as in the physical world.

It must be remembered in considering the *constitution of consciousness* that full consciousness is only concerned with adjustments that are relatively new and unusual; conditions which, not having been met before, permit of reactions in any one of several directions. When mental acts have occurred repeatedly in response to the same sort of circumstances they become progressively less and less conscious and finally pass to the level of the automatic as the result of the development of a well defined, relatively stable mechanism. The familiar example of the piano player will illustrate this progressive change. At first while learning, each movement is painfully conscious, the fingers have to be watched, each note separately observed, and the required movements are slowly and awkwardly executed. When proficiency has been acquired the same results are accomplished far better, with much less effort, and with so little attention that an occasional glance over the shoulder and entering into the conversation of those about do not seem to interfere with the playing. The processes involved have passed beyond the level of clear consciousness to a stage of semi-automatism.

If we will consider the infinitude of adjustments that the individual has to make to his environment it will be seen that this is a conservative process. As soon as a given adjustment is well formed it is pushed aside and the field of consciousness left free for new problems. This conclusion is well expressed in the following quotation:[8] "There exists a conviction, fairly widespread, that the function of consciousness is that of adjustment, that is, that consciousness appears at moments of conflict; and there is

[7] Bergson: Creative Evolution. New York, Henry Holt & Co., 1911

[8] I am unable to locate the source of this quotation.

reluctance in admitting that adjustment may take place just as well without it, that novel conclusions, as some observers report, may issue apart from it."

In other words—clear, full consciousness accompanies only those mental states accompanying adjustment to new and unusual conditions; conditions permitting of various reactions and involving therefore selective judgment, critique, choice—in short, *reason;* and in proportion to the frequency of the repetition of the same adjustment the mental state accompanying such repetition tends to pass out of the field of clear consciousness. Stated in this way the method of reaction will be seen to have a biological significance and not merely an individual or even human importance. Ideas neither arise spontaneously nor do they exist without having established relations with other ideas. The relationships thus established are brought about and cemented by the emotional content of the event which brings them together and they bear thus a relation of interdependence as among themselves—they are constellated. These constellations exist as the mental counterparts of events and correspond to experiences which have emotional content and operate to control conduct though for the most part they are separated from full, clear consciousness.

The standpoint of this functional psychology is distinctly different from that of a static psychology. Until its development the attitude of the psychiatrist was that of the systematic biologist classifying the several cases into families, genera, species, but classifying upon the basis of the obvious symptoms only. The keynote of the new standpoint is its distinctly individualistic trend.

The fundamental conception of this individualistic viewpoint is that every psychic fact must have been preceded by an efficient psychic cause. Ideas, or, better, mental states, do not arise *de novo.* They must be the outcome always of other mental states from which they necessarily issue. This is so throughout the field of psychopathology even in the realm of the so-called organic, the psychoses associated with well defined brain changes. That an alcoholic should have dilirium may well be dependent upon a toxemia, but whether in his delirium he sees snakes or monkeys, visions of his office, or of hell, must depend upon purely

psychic causes, upon the preëxisting psychic material which has become involved in the disorder. Whether a paretic is exalted or depressed, whether the exaltation is largely erotic or expresses itself by delusions of great wealth, must find its explanation in the mental make-up of the person afflicted and the character of his psychic trends. The cards may be indefinitely shuffled or arranged in any way but there are only fifty-two of them, and the result, whatever it may be, is conditioned and delimited by that fact. This illustration should not, of course, be taken too literally because new psychic facts, new material, new cards, are added during the course of the psychosis. The fact intended to be emphasized is that the disease process can only deal with the material it finds at hand or has furnished it, that it itself does not create.

With this fundamental conception the psychiatrist is in a position to remind us of the chemist or the astronomer. If there is a hiatus in the logical connections of the different steps in a psychosis, like the chemist he can with confidence look for an element to fill the space. If there is a disturbance somewhere along the line, like the astronomer, he may expect to find a hitherto unknown source of energy to account for it.

This deterministic attitude of present day psychology, this hypothesis that every bit of conduct is an end product conditioned by what has gone before and out of which it issues leads us to an historical examination of the symptoms of the psychoses for their interpretation. A complete history of the symptoms is therefore an explanation of them.

Inasmuch as the symptoms must be explained by an uncovering of their past it follows that a psychosis is a form of reaction which can only be interpreted if we know the history of the development of the individual. It goes without saying that the general scheme of development is the same for all, it differs only in respect to the relative emphasis placed upon certain elements, therefore we should expect to find an explanation of the psychosis to lie in the nature and extent of the deviations from the normal course of development and the content of the psychosis to consist of the material the individual had acquired along the way.

The psychosis is the resultant, the issue for the time being, of a conflict. The conflict is between unsatisfied, instinctive desires

which have been repressed into the region of the unconscious, and the conscious, voluntarily directed tendencies of the individual. There are several hypotheses to account for the psychosis on the basis of such a conflict. I will briefly indicate them.

Freud believes that the tendencies that are repressed in the unconscious are directed by the pleasure-pain motive to conduct and the pleasure sought is of a libidinous, that is, sexual nature. In the course of development certain forms of pleasure seeking have received undue emphasis; the child has for some reason continued to derive pleasure from some activity, nakedness (exhibitionism), sexual curiosity (peeping), inflicting pain on self or others (sado-masochism), sexual yearnings for the parent of the opposite sex (incest), pleasure in its own sensations (auto-erotism), love of children most like itself, of the same sex (homosexuality), which should, as a source of pleasure, have been relegated to its historic past, and that therefore the necessity for deriving pleasure in this way is greater than normal and tends constantly to find expression. Such ways of pleasure seeking are incompatible with the conscious ideals and so can only come to expression in some disguise. The way in which these tendencies are satisfied and the disguises they assume produce the symptoms of the psychoses. For example a homosexual man who could not bring himself to consciously think of concrete homosexual experiences may engage in welfare work among men. The sexual interest is drafted off at a higher, socially acceptable and useful level, it is *sublimated*. When such a man, however, is unable to fully sublimate his homosexual libido he may take to alcohol because it brings him into the company of men and permits a degree of intimacy under the guise of intoxication that would not otherwise be possible. If his sublimation fails still more completely he may develop a psychosis with hallucinations of hearing in which the voices accuse him of homosexual practices.

Jung, on the other hand, emphasizes the importance of the present difficulties, the impossibility of the libido finding an adequate outlet because of some obstacles. A man may be in love with some one who is impossible because of social or financial barriers or because the love is not returned. The libido is thus blocked in its efforts to attach itself to a suitable object and the conflict brings into the foreground ways of using the libido which

had been efficient in the past. Men, for example, taken from their families and put aboard ship for a long voyage revert to masturbation or to homosexual practices.

Adler, however, deals more, in his hypotheses, with the ego- (self-preservative) instinct rather than with the sexual, and sees in the psychoses a conflict due to the desire to dominate which is frustrated by a feeling of inferiority based upon some inherent organic defect. A man who has a definite defect such as a defect of speech feels that that is his weak point and he therefore directs a surplus of energy to endeavoring to overcome it. He may thus become a public speaker (Demosthenes) or if he is unable sufficiently to overcome his feeling of inferiority he may break down with a psychosis or develop an oversensitiveness with reference to his defect, with ideas of reference, thinking that people notice it, remark about it, etc. The feeling of inferiority, Adler believes, has its basis in an inferior organ.

Kempf[9] more recently has correlated all these factors relating to the unconscious tendencies to conduct based upon unsatisfied instinctive desires and laid particular emphasis upon the necessity for studying the motor sets of the individual (paths of discharge—emotional, ideational, muscular, neural, glandular, etc.) for the different instinctive tendencies. His approach to the problems tends in a much more definite way than any other to eliminate the difficulties which arise from the constantly emphasized distinction between mind and body. Emotions, muscular tensions, and all sorts of secretory anomalies are then understood as belonging to actions which are, so to speak, held within the body, not permitted to come to pass. The symptoms of the neuroses and psychoses are then the symbolic language of the unsatisfied instinctive desires translated into the motor sets which are appropriate for fulfilling them, but which owing to their conflict with the conscious personality ideals are not permitted to gain their ends by being translated into conduct.

In dealing with the conflict the individual may take one of two methods—follow one of two paths. He may turn back upon and within himself, that is, retrace the path of development along which he has come until he comes to a point at which he succeeds

[9] Kempf, E. J.: The Autonomic Functions and the Personality. Nerv. and Ment. Disease Monograph Series, No. 27.

in getting a sufficiently satisfactory expression, for example, a person who has inadvertently caused the death of some one (a nurse who mistakenly gave a poisonous dose of medicine) may revert to a period in her development antedating the unbearable emotional experience and become again, as it were, a young girl with, therefore, all knowledge of the experience effaced from her memory. The whole period of her life as a nurse may be wiped out and so the event is as if it never had been. This is the method of reaction by *introversion.*

On the contrary some individuals, differently constituted, do just the opposite. They run away from their conflict not by turning back within themselves but by running into reality. Their *"flight into reality"* takes the form of an active interest in everything and every person that touches their lives in any way. Everything attracts their libido. Unfortunately they are usually too distractible, not being able to confine their interests in any one direction long enough to be efficient. This is the method of reaction by *extraversion.*

The symptoms of the neuroses and psychoses can thus be seen to be further qualified by the way in which the individual reacts to his conflict—by introversion or by extraversion.[10] Finally, as I have already indicated, there is a large individual content to the psychoses (special delusional ideas, the specific things the hallucinatory voices say, etc.) which has its explanation in the experiences of the individual along the way.

[10] For more detailed analysis of these types of reaction see Jung, C. G.: Psychologische Typen, Zürich, Rascher & Co., 1921; Hinkle, B. M.: A Study of Psychological Types. The Psychoanalytic Review, April, 1922.

CHAPTER IV.

Classification of Mental Disorders.

Classifications are of service in as much as they offer a condensed résumé of existing conceptions concerning the nature and relationships of the things classified. They furthermore serve to render new conceptions more concrete, which otherwise would tend to remain in their older settings and thus be less useful. The more complex the set of relations to be brought together the greater the number of attempts at generalization and the greater the disparity in points of view.

Thus when the question of the classification of the different psychoses is approached a condition of affairs is found which leaves much to be desired. The problem of classification has been approached from every side: the psychological, the pathological, the etiological, and the clinical, and while some authors adhere to one point of view the majority do not, but offer a classification based on all four considerations. This latter position is practically necessary as there are types of mental disorder which lend themselves only to classification from one of these standpoints and find no classification on any other basis.

As a matter of fact our knowledge of the psychoses is altogether too limited at present to justify the expectation that the problem of classification can be solved. Any attempt at grouping mental disorders under separate heads must now, as always, be but tentative and incomplete. Classifications grow with changing concepts, they represent roughly and in concrete way stages of development and should only be considered from that standpoint. They cannot be literally compared as the very words of which they are composed also grow and change in meaning with the passage of time. I will not attempt to offer any exhaustive scheme of classification but in the various chapters of this work will discuss the forms of mental disorder which are generally acknowledged to exist and while endeavoring to give a clear picture of types will take the broad view which realizes that the different forms of mental derangement are not capable of clean-

cut demarkations but that on the contrary many of the present groups will in the course of time be broken up into smaller groups as we come to more accurately differentiate cases and appreciate more fully the true value of signs and symptoms. In fact, disease types are not absolutely definite things and each and every case needs not of necessity be classified under one and only one caption for all time. A diagnosis that is in order to-day may be quite useless and passé six months hence, while aside from the fact that in the course of the chronic psychoses acute symptoms may develop which have only a remote relation to the fundamental disease type we must appreciate the fact that there are many cases that so truly partake of the symptoms of two psychoses as to make their relegation to either group equally impossible. Then again within the larger groups all grades of transition cases may be found, while a certain few cases defy all attempts at classification based purely upon a descriptive terminology.

The psychoses include a great multitude of different conditions—of different sorts of reaction—due to a host of different kinds of causes and the explanation of the difficulty, in fact the practical difficulty of classifying mental disorders on any one basis—the etiological, the pathological, the psychological—is at once apparent. It would be just as sensible to try and force under one head all the diseases that might involve the kidney, including sarcoma and tuberculosis with the nephritides proper.

It is true that the symptoms of mental disorder tend to arrange themselves into groups, but the constancy of these groups is a very variable factor, and like the epileptologist who no longer speaks of epilepsy as a concrete entity but speaks rather of the epilepsies, so we are getting away from the idea of distinct, definite psychoses and are using such terms as the dementia paralytica group, the manic-depressive group, the hysteria group, etc.

These groups, the so-called clinical types, are not clean-cut entities but are only groups of symptoms which either seem to occur more frequently in combination or else have been more definitely and clearly seen because of the nature of that combination. In fact classical types as such may be said to be in the minority. The great mass of cases seen are combinations more or less intermediate in character. The conception of types in order to be accurate must be from a broad biological viewpoint. Types are like species. They have innumerable transition and inter-

mediate forms. It is as if overlooking a vast though young forest. Here and there are certain trees which because of their size or prominent location stand out distinct from the others. These would at once be picked out by the observer as types, yet the forest as a whole is not composed of these but of the immense number of smaller trees among which these few stand out definitely, and a more detailed study of the majority of the trees of approximately the same size would reveal minor differences of structure; for example, in the form of leaf, thickness of bark, inclination of branches, color of flowers, etc., many of which might only serve to distinguish the individuals, while others would be of sufficient importance to constitute varieties, or even species.

Insanity[1] is not a disease; it is rather a symptom grouping for a large number of different mental diseases which tend to arrange themselves with greater or less distinctness into circumscribed groups of reaction trends. The study of psychiatry is therefore primarily a study of disordered function and must be conducted not only in the autopsy room but in the psychological laboratory. And this study will only reach its full fruition when the results of the detailed analyses of aberrant reaction trends are correlated with the results of a study of the mental "make-up" of the individual before he becomes mentally sick.

This is well illustrated clinically when we consider any one of the etiological factors of a mental disorder. Take for example alcohol. There are a number of psychoses that seem to occur almost solely under the influence of alcohol. Of the various so-called alcoholic psychoses one patient will develop delirium tremens, another acute hallucinosis, a third Korsakow's psychosis. What conditions the special form of psychosis in each case is not definitely known. On the other hand certain patients as a result of alcohol develop quite different psychoses, the alcohol perhaps conditioning the outbreak of an attack of manic-depressive psy-

[1] Insanity should not be used as a medical term at all. It is solely a legal and sociological concept and so used to designate those members of the community who are so far from able to adjust to the ordinary social requirements that the community segregates them (forcibly perhaps) and takes away their rights as citizens. Insanity is a form of social inadequacy which medically may be the result of many varieties of mental disease. Insane, therefore, means nothing more than certifiable.

chosis, or it may condition the breakdown of dementia precox, or accelerate the development of paresis.

The study of character trends has, fortunately, begun to be appreciated and is already accumulating a considerable literature and leading to very suggestive results. We have for some time known very well, in a general way, the unbalanced character, the epileptic character, the hysterical character, and the unresistive character recognized so often in general medicine because of the abnormal reaction to febrile disturbances, easily developing delirium as a result of only a moderate fever, and while recent studies have outlined the differences in character as manifested by sex, a beginning is being made in the recognition of those types that may later develop a psychosis. There are definite types of character which tend under appropriate conditions to develop the manic-depressive type of reaction while others tend to the development of deterioration types.

The individual is a biological unit and must be so considered in relation to other individuals, to society. If this is forgotten the perspective is lost. The end and aim of psychiatry is no longer considered to be either to find a diseased nerve cell or to make a hard and fast diagnosis of a given condition at a given time. If we are to understand the psychosis we must understand the individual, we must study not only his origin and development but his adjustment to conditions. A psychosis cannot be understood by subjecting it to cross-section for the purpose of defining its content at a particular point, or by subjecting it to longitudinal section for the purpose of tracing the beginning and the end of symptoms. Such subjection to the narrow field of an optical section will not do—it must be studied as a life history. Our patients must be considered as individuals who under certain conditions have reacted in certain ways. The type of reaction can reach its final explanation only when the type of person displaying it is known.

Birnbaum[2] in two recent essays has discussed these matters fully and sees in the previous method of approach an effort "at seizing of the complete disease picture," and contrasts this method with that of "structure analysis" as the coming principle for re-

2 Birnbaum, K.: Der Aufbau der Psychose. Allg. Zeitschr. f. Psych., 75, 455, 1919; Die Strukturanalyse als klinisches Forschungsprinzip. Zeitschr. f. d. ges. Neurol. u. Psychiat., 53, 121, 1920.

search. The syndrome of the psychosis in its outward manifestation is often the product of a complex, many-sided and varying coöperation of factors of different nature, endogenous, and exogenous, mental and physical, functional and organic, which makes necessary what KRETSCHMER calls a "multidimensional diagnosis." BIRNBAUM speaks of the superstructure of the disease which includes the components represented by the symptoms and course, the accessory conditions in which the disease arises, the processes from which it springs, and the factors by which it is conditioned. The cause and the form of the disease he would separate as the *pathogenic* and the *pathoplastic* phenomena respectively. With these factors are associated the general liability or predisposition (pathogenic tendency) or the tendency to a certain form of disease (pathoplastic tendency). The factors which set the disease in motion are the provocative factors. The task of future psychiatry is to set forth these various components, and their different influences in the disease picture. BIRNBAUM distinguishes endogenic, exogenic and psychogenic factors. The simplest cases may be composed of determinants of different character value, and the pathogenic and pathoplastic valency and the relations that these factors bear to each other are of great significance. For example, a disease picture may be conditioned pathoplastically, that is, the pathoplastic phenomena may obscure the true disease type, especially when condensation, transformation, symbolization, conversion, etc., are taken into account. As to prognosis, structural analysis diminishes the faith placed in the course of the disease by showing that the periodic course need not always be conditioned pathogenically, but may be caused pathoplastically. Further, the new point of view shakes the dogma hitherto held concerning the prognosis, namely, that it is unalterably associated with the type of disease. The pathoplastic moment may be important for the prognosis. KRONFELD[3] says that a disease entity can be considered to exist only where a systematic uniformity in a whole series of interrelated manifestations can be proved. Clinicians must proceed from external phenomena to the inner laws on which they depend.

The important thing is an understanding of the patient, not a

[3] Kronfeld, A.: Bemerkungen zu den Ausführungen von Karl Birnbaum über die Strukturanalyse als klinisches Forschungsprinzip. Zeitschr. f. d. ges. Neurol. u. Psych., 53, 317, 1920.

labeling of the psychosis. To this end a comprehension of the character make-up, the nature of the etiological factors and accessory conditioning factors, and the mechanism of the reaction must be known. So much at least must we know and then whether we give one name or another to our resulting conception, or no name at all, matters little.

In fact the very giving of a name has its distinct dangers, for it means only too often a cessation of interest. For example, a patient is labeled dementia precox and forthwith consigned to hopelessness and oblivion because to the person giving the name the name has that significance. I am convinced of the great danger of giving names and emphasize in my teaching the mechanisms involved, try to show what the patient is trying to do by means of his psychosis, interpret the meaning of his conduct, his symptoms, as indicated in the last chapter. Names nevertheless become more or less necessary as means of conveying thought.

The present tendency is to get away from classifications in the old sense of applying names to groups of symptoms, that is, in the sense of considering each psychosis as a more or less static entity to which a descriptive term is given. We attempt now, in harmony with the new genetic and dynamic psychology, to fathom the meaning of the psychosis, to try to understand what the patient is endeavoring to bring to pass, and how he is trying to accomplish the result. Then the name is applied which best describes the process, the mechanism which is most in evidence. Such designations are therefore used as extraversion, introversion, transference, regression, compensation, projection psychosis, which indicate the direction in which the libido is flowing, whether it is failing, succeeding, compromising, compensating, or projecting. All these terms keep strictly to the psychological situation and resume the facts of the psychosis in psychological terms.

Southard[4] has made a very practical division of the great classes of the psychoses into eleven groups as follows:

1. Syphilitic . . . . . Syphilopsychoses
2. Feeble-minded . . . . . Hypophrenoses
3. Epileptic . . . . . Epileptoses
4. Alcoholic, drug, poison . . . . . Pharmacopsychoses

[4] Southard, E. E.: A Key to the Practical Grouping of Mental Diseases. Jour. Nerv. and Mental Dis., January, 1918.

5. Focal brain ("organic," arteriosclerotic) . Encephalopsychoses
6. Bodily disease ("symptomatic") . . . . . Somatopsychoses
7. Senescent, senile . . . . . Geriopsychoses
8. Dementia precox, paraphrenic. . . . . Schizophrenoses
9. Manic-depressive, cyclothymic . . . . . Cyclothymoses
10. Hysteric, psycho-, neurasthenic. . . . . Psychoneuroses
11. Psychopathic, paranoiac, *et al*. . . . . Psychopathoses

The following classification of mental diseases is the official classification adopted by the American Psychiatric Association, the representative body of psychiatrists of the United States and Canada, and is used largely, especially in the State Hospitals throughout the country:

1. Traumatic psychoses:
   - (a) Traumatic delirium.
   - (b) Traumatic constitution.
   - (c) Post-traumatic mental enfeeblement (dementia).
   - (d) Other types.
2. Senile psychoses:
   - (a) Simple deterioration.
   - (b) Presbyophrenic type.
   - (c) Delirious and confused types.
   - (d) Depressed and agitated type.
   - (e) Paranoid types.
   - (f) Pre-senile type.
   - (g) Other types.
3. Psychoses with cerebral arteriosclerosis.
4. General paralysis.
5. Psychoses with cerebral syphilis.
6. Psychoses with Huntington's chorea.
7. Psychoses with brain tumor.
8. Psychoses with other brain or nervous diseases:
   - (a) Cerebral embolism.
   - (b) Paralysis agitans.
   - (c) Meningitis, tubercular or other forms (to be specified).
   - (d) Multiple sclerosis.
   - (e) Tabes dorsalis.
   - (f) Acute chorea.
   - (g) Other diseases (to be specified).

9. Alcoholic psychoses:
   - (a) Pathological intoxication.
   - (b) Delirium tremens.
   - (c) Korsakow's psychosis.
   - (d) Acute hallucinosis.
   - (e) Chronic hallucinosis.
   - (f) Acute paranoid type.
   - (g) Chronic paranoid type.
   - (h) Alcoholic deterioration.
   - (i) Other types, acute or chronic.
10. Psychoses due to drugs and other exogenous toxins:
   - (a) Opium (and derivatives), cocaine, bromides, chloral, etc., alone or combined (to be specified).
   - (b) Metals, as lead, arsenic, etc. (to be specified).
   - (c) Gases (to be specified).
   - (d) Other exogenous toxins (to be specified).
11. Psychoses with pellagra.
12. Psychoses with other somatic diseases:
   - (a) Delirium with infectious diseases.
   - (b) Post-infectious psychosis.
   - (c) Exhaustion delirium.
   - (d) Delirium of unknown origin.
   - (e) Cardio-renal diseases.
   - (f) Diseases of the ductless glands.
   - (g) Other diseases or conditions (to be specified).
13. Manic-depressive psychoses:
   - (a) Manic type.
   - (b) Depressive type.
   - (c) Stuporous type.
   - (d) Mixed type.
   - (e) Circular type.
   - (f) Other types.
14. Involution melancholia.
15. Dementia precox:
   - (a) Paranoid type.
   - (b) Catatonic type.
   - (c) Hebephrenic type.
   - (d) Simple type.
   - (e) Other types.

16. Paranoia or paranoid conditions.
17. Epileptic psychoses:
    (a) Epileptic deterioration.
    (b) Epileptic clouded states.
    (c) Other epileptic types (to be specified).
18. Psychoneuroses and neuroses:
    (a) Hysterical type.
    (b) Psychasthenic type.
    (c) Neurasthenic type.
    (d) Anxiety neuroses.
    (e) Other types.
19. Psychoses with psychopathic personality.
20. Psychoses with mental deficiency.
21. Undiagnosed psychosis.
22. Without psychosis:
    (a) Epilepsy without psychosis.
    (b) Alcoholism without psychosis.
    (c) Drug addiction without psychosis.
    (d) Psychopathic personality without psychosis.
    (e) Mental deficiency without psychosis.
    (f) Others (to be specified).

CHAPTER V.

Causes and Outcome of Mental Disorders

While it is fully realized that mental disorders are so various that a general chapter on their causes is quite as illogical as would be a chapter on the causes of fever in a work on general medicine, still there are a number of practical issues that may be discussed in such a chapter and which I think justify it.

As in other departments of medicine, so here, we find two classes of causes operative—*predisposing* and *exciting*. The predisposing causes are made up of those conditions existing within the individual and which render him liable to the development of mental disorder under favorable circumstances. The exciting causes are those circumstances or conditions which produce the actual attack of mental disturbance operating usually upon predisposed soil. The predisposing causes may be likened to a train of gunpowder, the exciting causes to the match that fires it.

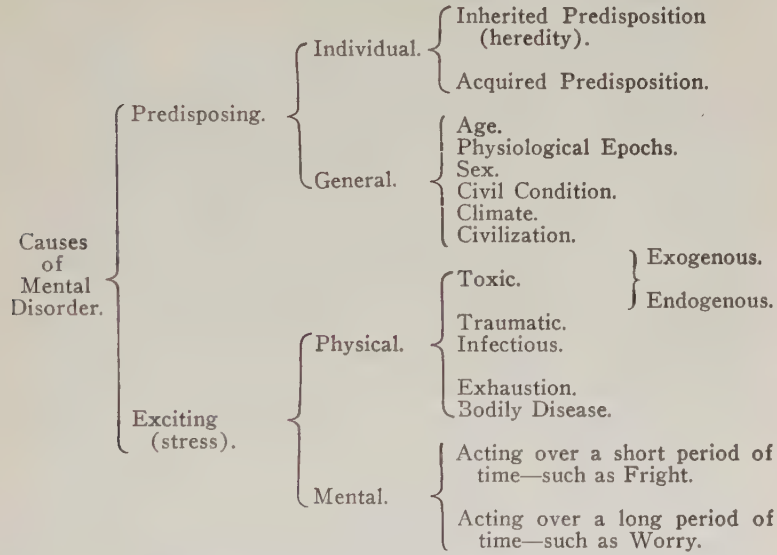
The following table sets forth in a general way the factors of etiological significance in the development of mental disorders.

The predisposing causes are from their nature in the main constitutional, although a predisposition to mental disease may be acquired, *i.e.*, by systematic poisoning (alcohol), the prolonged debilitation of disease (tuberculosis), etc. The exciting causes can all be classified under the general caption of stress, mental or physical, exogenous or endogenous and comprise the various factors which are immediately causative of the outbreak of the attack. Our classification of causes would then be the following:

Predisposing Causes.

Individual: *Inherited Predisposition.*—The whole subject of heredity, so far as it relates to insanity, is in a most unsatisfactory state, very largely because investigators have been dealing with "insanity" as if it was a simple, concrete affair instead of the infinitely complex thing it has proved to be. As I have pointed out, "insanity" is just a label for a certain form of social maladjustment that may be dependent upon innumerable factors, each

one of which, in turn, may be, and probably is, highly complex. To speak, therefore, of the end result, "insanity," as something that can be traced through the germ plasm in any such sense as the determiner for eye color, or height, or sex, is most misleading. An inherited predisposition to mental disorder is found in from 30 to 90 per cent. of cases according to different authorities, while the average for all conditions has been estimated at from 60 to 70 per cent. But any one who is at all familiar with the collecting of statistics must know how impossible it is for them to fully represent the facts in such a matter.



If we will take up any annual report of an institution for the insane[1] and turn to the table giving the causes of insanity in the several patients under treatment, we will find assigned such causes as these: "business anxiety," "death of mother," "loss of property," "disappointment in love," "domestic troubles," "excessive study," "political excitement." How many of us but have suffered at some time or other from some or perhaps all of these so-called causes of insanity. Certainly we have all had

[1] Using the term with its social significance, *i. e.*, certifiable. While there is no such disease as insanity and the term insane is not a medical term yet the designation of institutions as "hospitals for the insane" is quite correct, for here the word insane refers to a social group which has been labelled such by the legal powers provided (certification).

business worries; certainly we have all lost property at some time, otherwise our good fortune is phenomenal; certainly we have all been subject to political excitement many times, and all of us presumably have lost a dear friend or relative, perhaps a father or mother. Dr. Carlos F. McDonald says very forcibly on this subject, ". . . that substantially every individual at some time or other during his life is exposed, in many cases repeatedly, to many of the so-called exciting causes of insanity, both mental and physical, and yet, despite this fact, we find that sanity is the rule—insanity the exception."

In ascribing these causes what has been done is simply this: The particular set of conditions which happened to prevail at the time the patient was attacked with a psychosis have been tabulated as the causes of that attack. While they may have had to do with the outbreak of the attack and thus operated as exciting causes, the much more important condition was the unstable make-up of the individual that made it possible for such events to operate as causes at all. A great deal of what heretofore has been regarded as constitutional, that is, hereditary is now regarded by the psychoanalysts as quite possibly individual and due to causes which at least are preventable. The presence of unconscious complexes[2] cause reactions which seem to be constitutional only because their real causes are buried from sight.

In a certain sense, a large number, if not all, of the psychoses can be considered as life reactions. That is, a defect of adjustment only develops upon the basis of some weak point in the personality make-up and that weak point can be traced to its developmental beginnings in early life. The foundation of a possible psychosis is therefore laid in every life to the extent that there is imbedded in the personality at some point a capacity for adjustment that is anyways short of practical perfection. It only needs the play of appropriate stresses to seek out this defect and discover it in the symptoms.

[2] The term complex is applied to a constellation of painful ideas which have been repressed in the unconscious. A person who is in serious danger from alcohol may become so rabid on the subject that he cannot consider any angle of the question calmly. His conduct is conditioned by his complex, though he may have no conscious idea that such is the case, but rather thinks that he is advocating a temperance platform in an altogether normal way without ulterior motive (see Chap. VII).

In other words, the average mind, under the influence of stress, does not become deranged unless from the operation of traumatism, toxemia, or extreme degrees of exhaustion and not even then with anything like the facility of the mind predisposed to disease by bad heredity or unconscious complexes.

In dealing with the subject of heredity, however, it must not be forgotten that our ideas are of necessity largely founded upon hypotheses, as biological science has not yet unfolded a sufficient number of facts to make it possible for us to tell just how much, in any individual case, must be attributed to the inherent qualities of the "germ plasm" and just how much to the influences of environment.

The view which has been pretty generally admitted until quite recently among biologists is that there is little warrant for the belief in the Lamarckian hypothesis of the inheritance of acquired characters. How, for example, can one possibly conceive that the specially acquired manual dexterity of the graver could by any process be so impressed upon the sex cells that it would reappear in the offspring? These cells have no intimate relation with the several parts of the body. They are relegated to a corner, so to speak, and the only general relations in which they come with the rest of the body result from the fact that they are bathed and nourished in the body fluids. The only thing we can conceive of as being inherited is the particular make-up of the individual that made the acquirement of the trait possible.

Although the sex cells have not that intimate direct connection with the different parts of the body by means of nerve currents that would make it possible for a change occurring anywhere to be reflected in them, they are bathed in and nourished by the body fluids and we might expect that general conditions producing toxemia might so affect them as in some way to impair their functions as shown in the resulting offspring.

Such appears to be the case, so that as a matter of fact we find not infrequently various debilitating and toxic conditions in the parents, the most common of which are probably tuberculosis, alcoholism, and syphilis. General conditions of this sort impair the germ plasm and produce defects in development as a result.

There are reasons, however, for combating this view. Cells, no matter where found, may be distorted in their development by poisons. But as soon as the disturbing factor is removed they

bound back to their type. Even though puny children may be born to drunken parents we might expect them to develop all right under a favorable environment, but if they do not it is as logical to explain the results as following because they are born of the same germ plasm, and therefore have the same tendencies as their parents which led, among other things, to their drunkenness, as it is to explain them as a result of the poisoning of the germ cell.[3]

This view of the non-inheritance of acquired characters has come about largely as a reaction against the extreme Lamarckian position. Now, however, there is a tendency to return to the previous position but in a somewhat modified form. The sex cells are undoubtedly much more highly differentiated than originally supposed but yet not to the extent of being the carriers of the finer individual adjustments acquired in the lifetime of the individual. Acquired characters are perhaps inherited in this new sense namely, only when they have been in evidence long enough, have a sufficiently long history, to have become essential, they are then relegated, so to speak, to the sex cells where they become permanently fixed.

We can see how this lack of transmission of acquired traits in this newer sense is really constructively conservative. The progress of the race has been one of infinite slowness, by a process of blind right and wrong trials. If every acquired trait were inherited, every wild idea propagated, the confusion of tendencies would multiply to no good. This, however, is not the case. Every departure from the mean tends to be wiped out in accordance with Galton's law of filial regression. The fundamental is preserved while the variations tend to disappear. In this way the race is kept, as a whole, at the point of highest average efficiency although, of course, as is nature's way, often at the sacrifice of the individual. And so the progress has been slow and laborious but, and here lies the compensation, correspondingly sure, and permanent.

Thus it would seem, that like the soul of the theologian, the germ plasm takes up its habitation in the body. The body grows, develops, dies. The germ plasm is relatively undisturbed and

[3] Reid, G. Archdall: The Laws of Heredity. London, Methuen & Co., 1910.

transmits to the next generation what it received from the last uninfluenced by passing changes that may have taken place in the body where it for the time being resided. This body has only such general effects upon the germ plasm, as to the character of being it will produce in the next generation, as are fundamental and racially significant, except such effects as are produced as the result of general disturbances of metabolism, toxemias and infections, which impair the body fluids, and the immediate chemical and physical environment of the sex cells. These effects are general effects, however, and it is quite unthinkable that the effect in the next generation should be a reproduction of like conditions. These effects show themselves rather in general disturbances of development, oftener in the line of deficiency. This apparently unchangeable character of the germ plasm is at the basis of the assumed lack of inheritance of acquired characters and has given rise to the phrase the "continuity of the germ plasm."

What has come out of the recent discussions on heredity is above all that it is not the hard and fast and static affair that we were led to suppose when the Mendelian laws were first rediscovered, and certainly we are far from speaking with any authority on the heredity of character traits. This ought to be obvious when we realize that in the fruit fly at least 50 genes are known to have to interact in order to produce so simple a feature as the red color of the eye, whereas hundreds are similarly required to produce a normally straight wing, and further, that if any one of the 50 genes is absent the red color of the eye will not result.[3a] Further than this we know that because a certain characteristic is inherited through the germ plasm is no reason why the individual possesses it. If this were true everyone who was capable of learning how to read and write would know how to read and write, but it requires the stimulus of the environment to develop the latent trait. Again this matter of inheritance and environment has shifted its meaning and we realize that we are dealing with two aspects of a situation that are always present and that environment does not begin to operate after birth, but is omnipresent, at the moment of impregnation, throughout the embryonic life of the individual, as well as thereafter. As JENNINGS[3b] has very well

[3a] Jennings, H. S.: Prometheus.
[3b] *Loc. cit.*

stated, all characteristics are hereditary and all characteristics are environmental, but no one is either exclusively the one or the other.

While, therefore, we not infrequently do find the same disease developing in the children that the parents suffered from—the heredity is *similar*—it happens more frequently that general conditions of ill health in the ascendants have so impaired the germ plasm as to produce conditions of instability which may show itself in various ways other than in reflecting the same disease—the heredity is *dissimilar*.

From the study of an extensive material MYERSON [4] concludes that in vertical transmission heredity in mental disease tends in general to be similar, with a certain trend, if the disease does not tend to disappearance, toward dementia precox. Thus paranoid states, manic-depressive and dementia precox psychoses tend to reappear as such in the descendants in the main but that paranoid states and manic-depressive psychoses of involution and the senium tend more strongly toward dementia precox. Of course, as he says, there must be a great number of mild psychoses in the descendants of the mentally ill who represent more or less successful efforts toward recovery. As to the horizontal transmission brothers and sisters tend, on the whole, to be alike (more so than parents and children).

The dangers supposed to lie in the marriage of near relatives are largely fictitious.[4a] IRELAND in a review of this subject states that it has not been shown that such marriages have a higher percentage of evil results than is found in the results of marriages throughout the entire population. The real danger lies in the possibility of bringing together two persons both of whom have the same bad strain and thus emphasizing the bad effects.

Acquired Predisposition.—The two most important agents in bringing about an acquired predisposition to mental derangement are alcohol and syphilis, while tuberculosis from the prolonged toxic-exhaustive condition it brings about would probably come third. All of these causes, the first two especially, may by acting upon the normal brain bring about such changes as to predispose it to disease and thus predispose the individual to the development

[4] Myerson, A.: The Inheritance of Mental Disease. Baltimore, Williams and Wilkins Co., 1925.

[4a] Ireland, William W.: The Mental Affections of Children, Idiocy, Imbecility and Insanity. London and Edinburgh, 1898.

of mental disorder. It must not be forgotten, too, that the occurrence of one attack of mental disorder predisposes to subsequent attacks.

General: *Age.*—According to the Eleventh Census there is a gradual increase in the number of cases of mental disease from the age of 10 to the age of 40. From 40 on there is a gradual decrease. The table given is very interesting and worth reproducing. It is as follows:

Age Period When Insanity Appeared.	1890.	1880.	Age Period When Insanity Appeared.	1890.	1880.
10–15	39	227	55–60	4,316	940
15–20	790	2,417	60–65	3,261	652
20–25	3,138	5,450	65–70	2,066	358
25–30	5,704	5,926	70–75	1,343	186
30–35	8,123	5,492	75–80	632	90
35–40	8,182	4,321	80–85	310	23
40–45	7,930	3,305	85–90	102	8
45–50	7,287	2,405	90–95	38	3
50–55	6,036	1,542	95+	3	

It would appear from this table that the greatest liability to mental disease existed between the ages of 30 and 40 as it is between these ages that we find the largest number of the insane. That so many more mentally ill should be between thirty and forty years of age than in any other decade is simply due to the fact that there are more people living of this age in the general community. Considering the number of the mentally sick in each decade compared to the total population of the same age, it will be found that the liability to such disorders practically progressively increase from twenty to eighty years of age. PHELPS[5] published an interesting table illustrating this point based upon the population of Minnesota.

Column 4 is obtained by multiplying Column 3 by 1,000,000 and dividing by Column 2. It is from the proportion: "807,978 is to 54, as 1,000,000 is to the required number."

Column 5 is obtained by dividing the chances per million of each decade by the total number of chances. It merely gives the chance of each decade as compared with the whole in terms of parts of 100. It is a relative percentage.

The caution must be added that this last column does not show the percentage of the mentally ill committed, but only the relative chances of becoming so in one decade as compared to the other

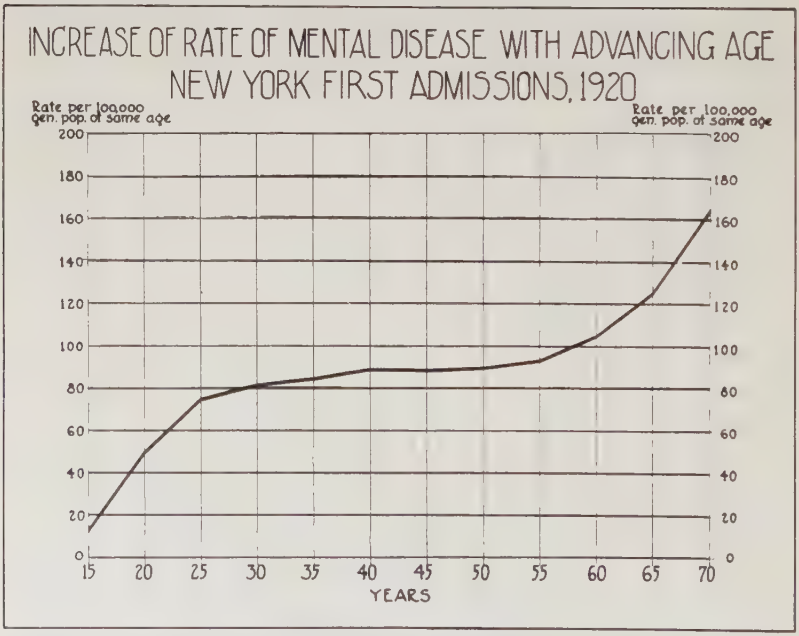
[5] Phelps, R. M.: Certain Hitherto Unpublished Data Concerning the Insane. Jour. A. M. A., Dec. 11, 1909.

decades and as compared with one hundred chances. If there were an equal number of people at each age, this would be the proportion committed from each decade.

COMPARATIVE LIABILITY TO INSANITY IN EACH DECADE.

Age by Decades.	No. Living in Each Age in Minn. (Census, 1900).	No. Insane Admitted in Minn. in 1901–1902.	No. Insane of Each Age Decade Admitted in Minn. per Million People Living at that Age in Minn.	Proportionate Chance of Becoming Insane at Each Age Decade, as Compared with Other Decades, in Percentages.
Under age 20.....	807,978	54	66.8	.410
From age 20–30.....	309,281	380	1,257.7	7.727
From age 30–40.....	252,248	522	2,069.3	12.710
From age 40–50.....	172,688	379	2,194.2	13.481
From age 50–60.....	103,189	218	2,112.6	12.980
From age 60–70.....	63,388	122	1,924.6	11.824
From age 70–80.....	31,026	78	2,514.0	15.447
Over 80.....	7,494	31	4,136.6	25.415
Total.....	1,747,292 (People in Minn.)	1,793	16,275.8 (Sum of relative chances.)	99.994

The increase in the rate of mental disease with advancing age is well shown in the following graph:[5a]



[5a] Courtesy of Horatio M. Pollock, Statistician New York State Hospital Commission.

It is interesting to note at this point that a considerable portion of the frequently referred to increase of insanity is due to the prolongation of life by preventive medicine. More people live to become mentally diseased. DANA[6] has called attention to the fact that while the greatest number of the mentally ill are afflicted in the decade from thirty to forty years, more people are now living to that age, the expectancy of life in the United States having increased from 28 in 1840 to 34.5 in 1900, while at the present time it is past fifty years of age.

The various types of mental disease have different age distribution curves. In paresis the greatest frequency is from thirty to forty with the peak of the curve at forty; in manic-depressive the greatest frequency is from twenty to forty with the peak at thirty; in dementia precox the greatest frequency is from twenty to thirty with the peak at twenty for males and thirty for females.

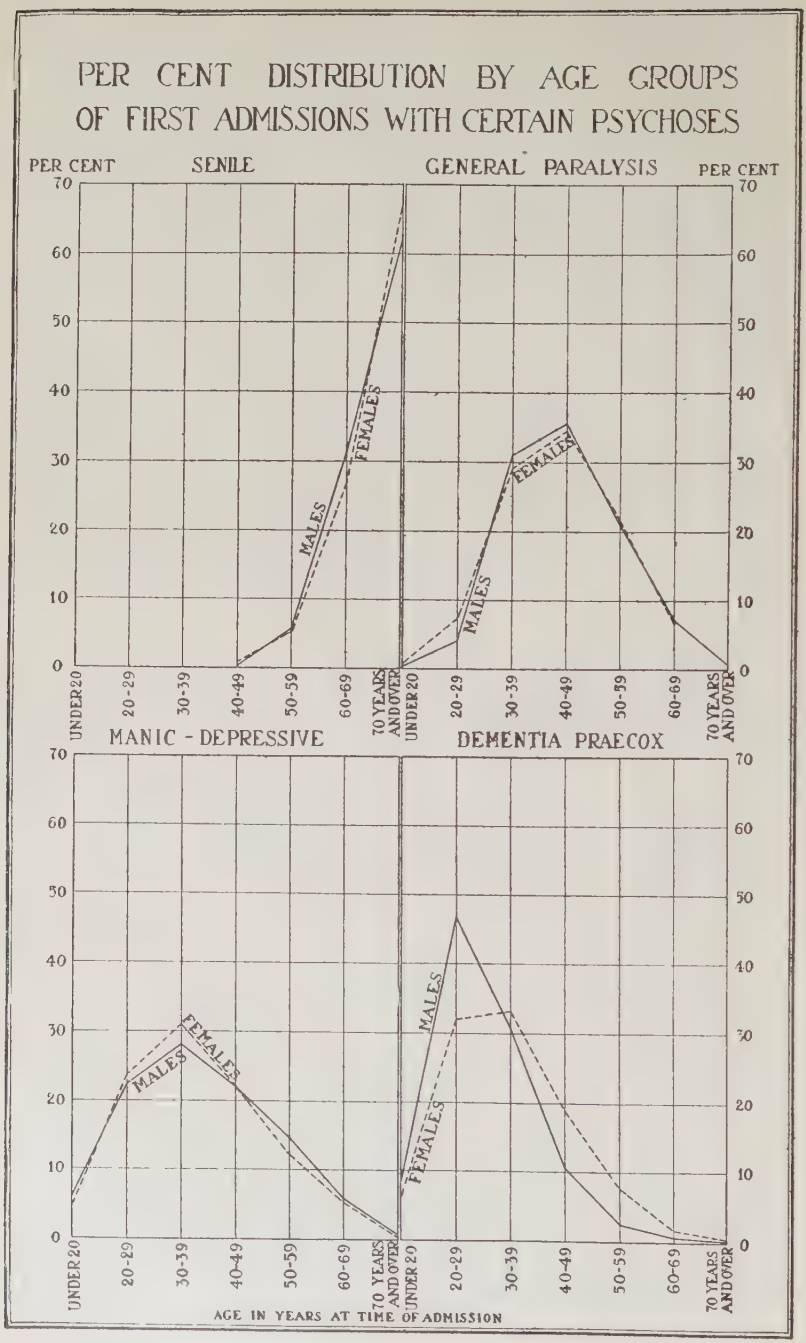
This is well shown in the following age distribution graphs[7] (p. 44) based on a study of 21,169 first admissions—11,688 males and 9,481 females:

Physiological Epochs.—The periods of life at which a latent tendency to mental disorder may crop out are the physiological epochs during which there are great changes going on in the general nutrition, physiological crises in fact. These physiological epochs are the periods of puberty and adolescence, the puerperium, the climacterium, and the senium. Mental disease at these physiological epochs, excepting the senium, indicates serious deficiency in capacity for biological adjustment.

Sex.—Although the psychoses are about equally divided between the sexes, the specially dangerous periods in the female, the puerperium and the climacterium, being about balanced by the results of alcohol and syphilis and a more strenuous mental life in the male, yet the U. S. Census seems to show a tendency to a gradual

[6] Dana, Charles Loomis: Psychiatry in its Relation to Other Sciences, Trans. Congress of Arts and Sciences, Universal Exposition, St. Louis, 1904. Boston and New York, Houghton Mifflin and Company, 1906.

[7] Horatio M. Pollock and Edith M. Furbush: Comparative Statistics of State Hospitals for Mental Diseases, 1920. Published by the National Committee for Mental Hygiene.


PER CENT DISTRIBUTION BY AGE GROUPS OF FIRST ADMISSIONS WITH CERTAIN PSYCHOSES
PER CENT
SENILE
GENERAL PARALYSIS
PER CENT
MALES
FEMALES
MANIC - DEPRESSIVE
DEMENTIA PRAECOX
UNDER 20
20-29
30-39
40-49
50-59
60-69
70 YEARS AND OVER
AGE IN YEARS AT TIME OF ADMISSION

increase in the percentage of males as shown by the following table:

Sex.	Per Cent. Distribution of					
	General Population			Insane Enumeration in Hospitals		
	1900.	1890.	1880.	December 31, 1903.	June 1, 1890.	June 1, 1880.
Both sexes	100	100	100	100	100	100
Males	51.1	51.2	50.9	52.3	51.8	50.4
Females	48.9	48.8	49.1	47.7	48.2	49.6

Here again, however, if we will examine the first admissions to State Hospitals of the several forms of mental disease, we will find that the sex distribution varies markedly.[8]

Clinical Groups in Which the Male First Admissions Notably Exceed the Female.

	Males	Females
Traumatic	47	6
With cerebral arteriosclerosis	537	307
General paralysis	1226	288
With cerebral syphilis	83	33
Alcoholic	572	131
Dementia precox	2230	2050
With psychopathic personality	124	86

Clinical Groups in Which the Female First Admissions Notably Exceed the Male.

	Males	Females
With pellagra	14	48
With other somatic diseases	262	415
Manic-depressive	922	1347
Involution melancholia	123	330
Psychoneuroses and neuroses	99	173

From these tables the excess of males in the traumatic, syphilitic and alcoholic groups and of the females in the somatic-disease, manic-depressive, and involution melancholia groups is obvious.

Civil Condition.—The percentage of certifiable psychoses is greater in the unmarried than in the married. The Census returns for all these in hospitals in 1904 show 50.1 per cent to have been single, leaving the balance of 49.9 per cent to be divided among married, widowed, divorced and unknown.

The statistics of the civil condition are, however, much more

8 Pollock and Furbush: Mental Diseases in Twelve States, 1919. Mental Hygiene, April, 1921.

interesting if, instead of being confined to these large totals they are examined with reference to the several groups of mental disease.[9]

The following percentages are based upon 8710 male and 7486 female first admissions.

Psychoses	Single		Married		Widowed		Separated or Divorced	
	Males	Females	Males	Females	Males	Females	Males	Females
Senile	15.3	16.3	44.2	23.2	35.4	56.0	3.1	2.2
With cerebral arterio-sclerosis	14.2	16.9	54.9	30.9	25.7	47.9	3.4	1.3
General paralysis	26.2	16.3	59.9	54.0	7.9	19.0	4.0	8.0
Alcoholic	44.4	11.5	41.1	59.5	8.7	24.4	4.7	3 9
Manic-depressive	45.8	28.5	45.1	59.6	4.8	8.5	2.2	2.2
Dementia precox	73.9	44.8	20.3	43.2	2.0	6.8	1.6	3.5

The differences shown in this table are striking and are dependent undoubtedly upon many factors, among them these: women marry at an earlier age than men and live longer: the onset of dementia precox occurs earlier in life among males than females. The relatively high percentage of women with paresis in the widowed and separated or divorced groups is noteworthy. The high percentage of dementia precox cases in the single group is confirmatory of the concept of this disease that considers it as a serious defect in capacity for biological adjustment.

Climate.—The only effect of climate is to supply conditions which make exhaustion and infection more liable. The climate itself has no direct effect. Malaria, yellow fever, and other diseases of tropical climates produce a condition of toxemia and exhaustion favorable to the outcrop of mental diseases, while the extreme heat makes physical exertion more exhausting and the effects of alcohol are not so well borne.

Civilization.—It has generally been supposed that mental illness is most prevalent among the most highly civilized. In the process of evolution the struggle for existence has changed from a physical to a mental struggle and as it is the organ most used that is most open to the dangers of accident and disease so it might be supposed that the brain would give way more frequently as the stresses of life become more and more mental rather than physical. This general proposition is open to contention, especially as we know so little about primitive races from this point of view. At least it does not take into consideration the compensation offered

[9] Pollock and Furbush: Mental Disease in Twelve States, 1919.

by civilization. The fact that civilization requires so much successful repression would seem to imply, however, that the psychoses, which are due so largely to failure of repression, must be expected to be much more prevalent the higher the civilization. The increase of mental disease in relation to the increase in general population of the United States is indicated in the following table.[91]

PATIENTS WITH MENTAL DISEASE IN INSTITUTIONS, 1880–1920.

Year	Number	Per 100,000 of General Population
1880	40,942	81.6
1890	74,028	118.2
1904	150,151	183.6
1910	187,791	204.2
1918	223,957*	217.5
1920	232,680*	220.1

* Excluding paroles.

The following graph[92] shows still more plainly how much faster than the general population the number of patients with mental disease in institutions in the United States has increased.

In this connection the following classification of mental diseases, in urban and rural districts of New York State, is interesting.[9a] Those living in cities and villages of 2,500 or more are classed as urban, the rest as rural:

RATES OF MENTAL DISEASE IN URBAN AND RURAL DISTRICTS IN NEW YORK STATE, 1915–1920

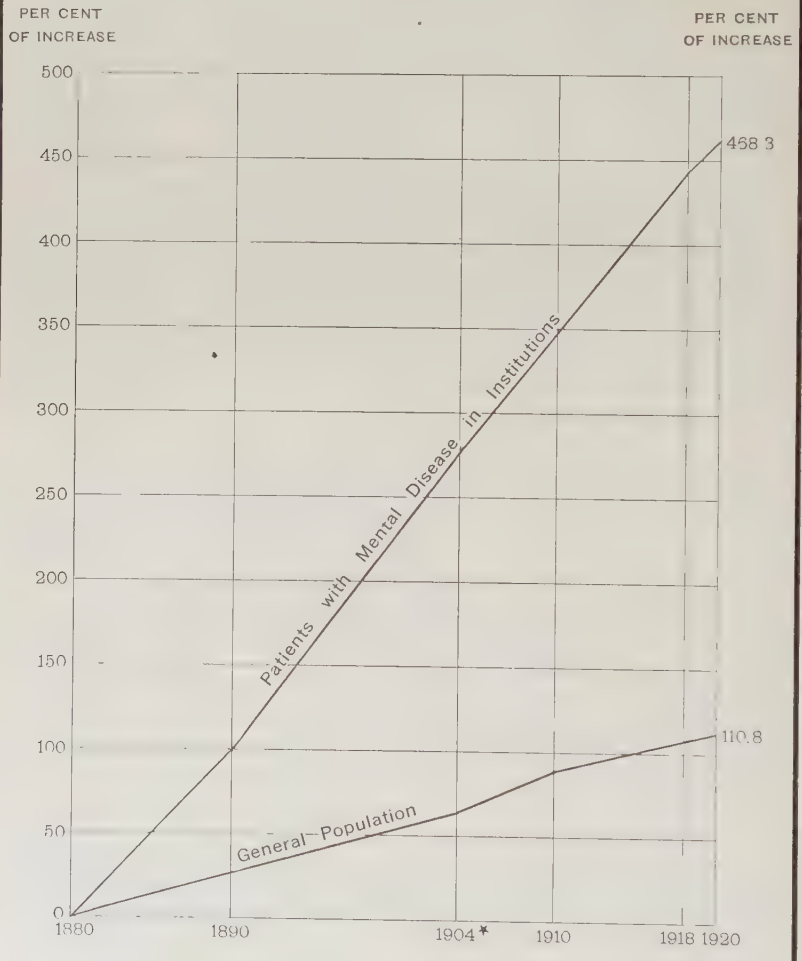
	URBAN FIRST ADMISSIONS		RURAL FIRST ADMISSIONS.	
PSYCHOSES	Number	Average annual rate per 100,000	Number	Average annual rate per 100,000
Senile	2,535	6.2	596	6.4
Cerebral arteriosclerosis	1,698	4.2	332	3.5
General paralysis	3,987	9.8	267	2.9
Cerebral syphilis	186	0.5	24	0.3
Alcoholic	1,510	3.7	152	1.6
With other somatic diseases	839	2.1	125	1.3
Manic-depressive	3,839	9.4	570	6.1
Involution melancholia	855	2.1	275	2.9
Dementia precox	7,790	19.1	728	7.8
Paranoia or paranoiac conditions	535	1.3	94	1.0
Epileptic	652	1.6	106	1.1
With psychopathic personality	558	1.4	110	1.2
With mental deficiency	702	1.7	202	2.2
All other psychoses	2,696	6.6	392	4.2
Total	28,382	69.5	3,973	42.5

[91] Pollock, H. M., and Furbush, E. M.: Patients with Mental Disease, Epilepsy, Mental Defect, Alcoholism and Drug Addiction in Institutions in the United States, January 1, 1920. Mental Hygiene, Vol. V, No. 1, January, 1921.

[92] *Loc. cit.*

[9a] Pollock, Horatio M., and Nolan, William J.: Mental Disease in Cities, Villages and Rural Districts of New York State, 1915-1920. "The State Hospital Quarterly," November, 1921.

INCREASE OF PATIENTS WITH MENTAL DISEASE IN INSTITUTIONS COMPARED WITH INCREASE OF GENERAL POPULATION OF THE UNITED STATES. 1880-1920



*No special census of patients was taken in 1900

The rates of cerebral arteriosclerosis, general paresis, alcoholic, manic-depressive, and dementia precox psychoses are higher in urban first admissions, while the rates of senile psychoses, involution melancholia, and mental deficiency are higher in the rural.

Race.—In a study in comparative psychiatry[10] of the Manhattan State Hospital material KIRBY has found that the Irish are more prone to develop alcoholic disorders and more liable to senile deterioration and other psychoses associated with organic brain disease. The Jewish race is practically free from alcoholic psychoses, but ranks higher than any other race in the functional group, including manic-depressive, dementia precox, constitutional disorders, and the various depressions. In the negro, paresis occurs proportionately with greater frequency than in any other race; alcoholic disorders are at a lower figure, as are also the functional psychoses, particularly the manic-depressive. The Germans are relatively high in paresis. The Italians are low both in paresis and alcoholic psychoses. They are highest in the epilepsies and furnish the largest percentage of unclassified cases. The English are highest in dementia precox, but the number of English studied was very small from which to draw conclusions. The American group showed no striking figures, but manic-depressive psychoses, paresis, and alcoholic disorders reached a relatively high percentage in those cases whose parents were born in the United States.

EXCITING CAUSES.

Predisposition alone, however, is not sufficient to produce mental disorder, especially is this true of an acquired predisposition such as that induced by alcohol, syphilis, and tuberculosis, without the element of mental stress added. This is well illustrated by the condition of the American Indian. Sorely afflicted as he is by the diseases and vices of civilization, his tendency is to an outdoor life, and as his land has disappeared and he has become physically incapacitated, the government has supported him, so that his sufferings have been in the main physical and not mental. Careless, slovenly, and improvident, he does not know much of worry for the morrow, and so we rarely find psychoses in his race.

[10] Kirby, George H.: "A Study in Race Psychopathology." State Hospitals Bulletin, March, 1909.

Physical: *Toxic.*—The various poisons which may act as exciting causes of the psychoses may be either *exogenous*—coming from without—or *endogenous*—originating within the body. Of the exogenous variety alcohol is perhaps the most prominent. It is apparently responsible for from fifteen to twenty per cent. of cases in males (see Chapter XIV). Alcohol and syphilis together, if we include paresis as a syphilitic disease, are responsible for about twenty per cent. of the certifiable psychoses in males at least. Some of the other poisons that belong in this group are opium (morphine), cocaine, atropine and its isomers, lead, and mercury, while the toxins of various diseases, such as syphilis, tuberculosis, typhoid, yellow fever, malaria, and influenza frequently act as exciting causes. Of the endogenous poisons the most important are those which originate from the gastro-intestinal tract, and as a result of chronic nephritis. The mental disorders which accompany such diseases as myxedema, exophthalmic goitre, and acromegaly probably belong here also.

Traumatic.—Direct injuries to the head, such as bullet wounds and fracture, are, of course, not infrequently the immediate causes of mental disorder, while more indirect injuries, such as concussion from falls, transmitted perhaps through the spine, may also be the starting point of a psychosis.

Exhaustion.—Exhaustion from prolonged physical and mental strain, from chronic diseases, or as the result of acute conditions following fever, or the result of sudden loss of considerable blood, may be prominent exciting causes. It is to be remembered in this connection that exhaustion, especially physical, results in and may in large part produce its effects by the development of toxic substances, as for instance from the breaking down of muscle.

Bodily Diseases.—Bodily diseases other than those developing poisons may act as causes by disturbances of circulation, reflex irritation, disturbances of nutrition and exhaustion. Such are cardiac diseases with broken compensation, the reflex irritation from intestinal parasites, and the various nervous diseases which often have mental symptoms connected with them such as epilepsy, Huntington's chorea, hysteria.

Mental.—Any severe mental stress may act as an exciting cause. A sudden emotional shock, such as fright, or the horror resulting from the terrible sights of the wounded and dying in a

railroad wreck, may induce an outbreak of mental disorder, while the less acute conditions of worry and anxiety, usually acting over a considerable period of time, may also be etiological factors in the development of a psychosis.

The whole subject of mental causes has received a great deal of attention of late[10] and has constituted a sort of reaction from the pathologist's viewpoint. Reference to the discussion of mind as an adaptive mechanism will make it clear how failure on the part of the individual to get into harmonious adjustment with his environment may produce a psychosis.

Aside from such obvious mental factors as psychological traumata and worry over patently disturbing situations the more remote and subtly acting intrapsychic conflicts are of greater importance. Tendencies for which the individual has never been able to find a comfortable adjustment, desires which he has always had to keep strongly repressed may finally assert themselves as the result of the gradual failure of repression (in advancing age), or its more sudden failure as a result of a mental shock or an acute illness. Under these circumstances the repressed material breaks through and constitutes the symptoms of the psychosis.

Outcome.

Recovery and Improvement.—Based upon a study of 265,829 patients in institutions in the United States on January 1, 1923, the recovery rate was 13.6 per cent. The following graph[11] shows the recovery rates in the principal groups of psychoses.

Psychoses	Recovery Rate		Improvement Rate	
	Males	Females	Males	Females
Alcoholic	39.5	29.6	30.0	31.7
With other somatic diseases	20.7	25.1	23.0	23.2
Involution melancholia	12.8	17.3	32.8	35.3
Paranoia or paranoid conditions	10.7	5.6	31.1	33.5
Psychoneuroses and neuroses	9.1	20.7	68.8	49.3
With psychopathic personality	26.4	12.3	32.6	37.5

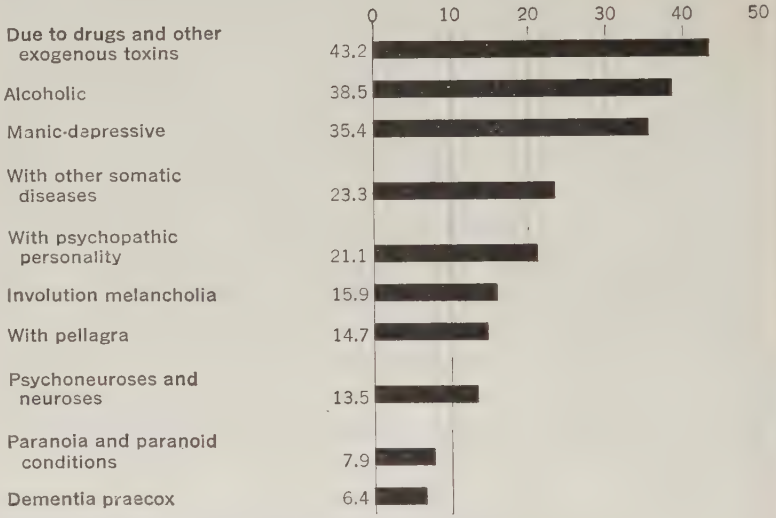
Both the recovery and improvement rates of female patients are somewhat higher than for males. Some of the noteworthy differences per 100 admissions are brought out in the following table[12] (p. 52).

[10] White: Mechanisms of Character Formation. New York, The Macmillan Company, 1916.

[11] Pollock, H. M.: Outcome of Mental Diseases in the United States. Mental Hygiene, Vol. IX, No. 4, October, 1925.

[12] *Loc. cit.*

RECOVERY RATES IN PRINCIPAL GROUPS OF PSYCHOSES
PER 100 ADMISSIONS OF SAME PSYCHOSIS, 1922



Death.—Patients with mental disease have a much higher death rate at all ages than the general population as shown by the following tables.[13]

DEATH RATES PER 1,000 BY AGE GROUPS AMONG THE GENERAL POPULATION OF THE REGISTRATION AREA OF THE UNITED STATES, 1920[14]

Age Groups	Males	Females	Total
15 to 19 years	4.2	4.0	4.1
20 to 24 years	5.4	6.0	5.7
25 to 34 years	6.5	7.2	6.9
35 to 44 years	8.4	8.1	8.3
45 to 54 years	12.6	11.8	12.2
55 to 64 years	24.9	22.8	23.9
65 to 74 years	54.7	50.7	52.7
75 years and over	137.4	133.0	135.1
Total	13.5	12.7	13.1

[13] *Loc. cit.*

[14] Mortality Rates, 1910–1920. Federal Census Report.

DEATH RATES PER 1,000 UNDER TREATMENT BY AGE GROUPS AMONG PATIENTS IN INSTITUTIONS FOR MENTAL DISEASE IN THE UNITED STATES, 1922

Age Groups	Males	Females	Total
Under 20 years	35.3	37.4	36.2
20 to 24 years	32.2	44.1	36.7
25 to 29 years	30.2	44.2	35.8
30 to 34 years	42.1	43.5	42.7
35 to 39 years	56.9	44.4	51.4
40 to 44 years	65.3	46.4	56.6
45 to 49 years	66.2	50.0	58.4
50 to 54 years	74.6	50.7	62.7
55 to 59 years	87.8	58.2	73.2
60 to 64 years	112.7	74.9	93.9
65 years and over	214.3	165.1	189.1
Total	80.1	67.4	74.3

Death rates among males and females from the principal diseases were distributed as follows.

Diseases	RATES PER 1,000 UNDER TREATMENT Males	Females	Total
Tuberculosis of lungs	6.6	8.1	7.3
Cancer	1.1	1.9	1.5
Apoplexy	5.5	4.8	5.2
General paralysis	21.7	6.0	14.4
Broncho-pneumonia	2.7	3.0	2.8
Lobar pneumonia	2.2	2.2	2.2
Diarrhea and enteritis	0.6	1.3	0.9
Nephritis, all forms	3.8	4.0	3.9
Suicide	0.8	0.5	0.7
All other cases	35.3	35.5	35.4

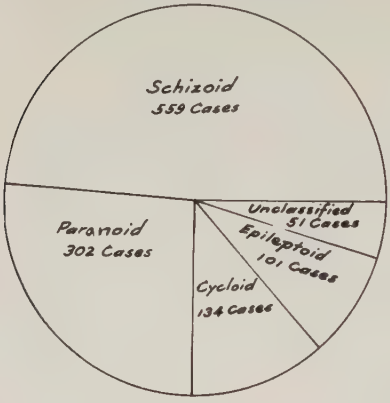
The relative malignancy of the four great reaction types is shown by the following table taken from the U. S. Census reports:

AVERAGE AGE AT DEATH OF PATIENTS WHO DIED IN HOSPITALS FOR MENTAL DISEASE DURING 1922

Psychosis	Average Age at Death	Number Who Died
Paranoia and paranoid conditions	61.4	402
Manic-depressive	50.8	2,645
Dementia precox	46.5	3,948
Epileptic	42.9	1,019

The most profoundly regressive type, the epileptic, with marked organic features, dies at the earliest age; the dementia precox group follows; then comes the manic-depressive who have much more normal types of personality, and finally the paranoid types, essentially compensatory in character, who live to the average age or even beyond.

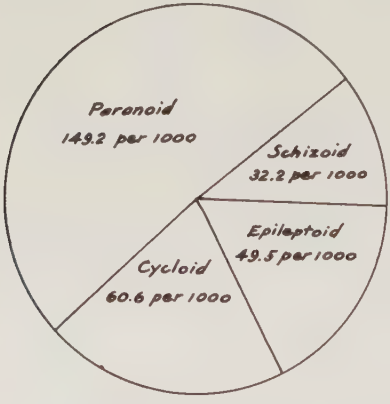
In a study of 1,147 deaths at Saint Elizabeths Hospital of patients suffering from these major psychotic reaction types—paranoid, cycloid, schizoid and epileptoid—the cases were distributed as in the accompanying figure.



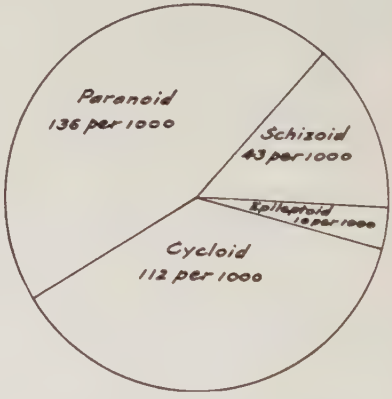
Distribution of cases according to reaction type. Male and female, white and colored, all ages. 1,147 cases.

The causes of death were as shown in the following eight figures.

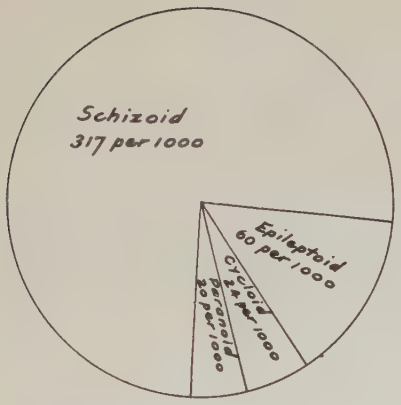
The most notable features are: the preponderance of tuberculosis and intestinal catastrophes in the schizoid group; of carcinoma, circulatory disasters and chronic infections in the paranoid group; and the greater frequency of syphilis in the epileptoid and cycloid groups than in the schizoid and paranoid groups.



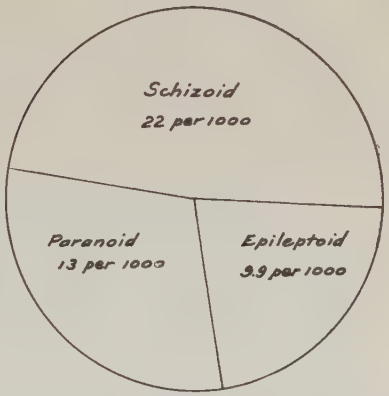
Comparative incidence of deaths due to circulatory disasters.



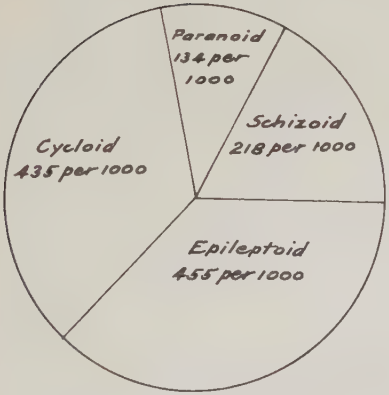
Comparative incidence of carcinoma and other malignant tumors.



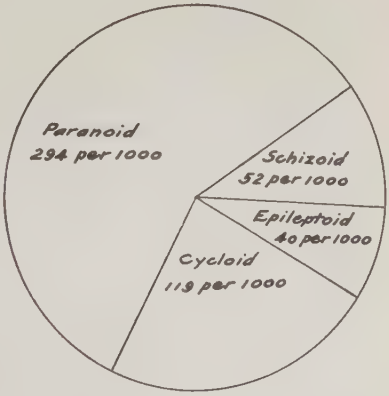
Comparative incidence of active tuberculosis.



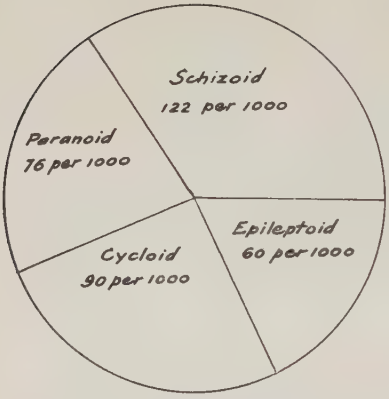
Comparative incidence of deaths due to intestinal catastrophes.



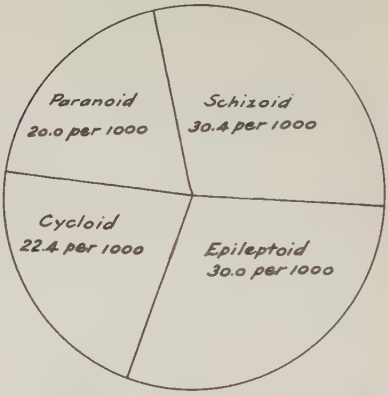
Comparative incidence of syphilis.



Comparative incidence of chronic streptococcus infections.



Comparative incidence of deaths due to acute infectious diseases.



Comparative incidence of deaths by violence.

CHAPTER VI.

Treatment.

In the treatment of the psychoses the general principles of therapeutics are of course applicable as in other departments of medicine. Disorders of various organs are found among the psychotic as among the normal and require the same sort of treatment. It is intended in this chapter to devote only a few words to the discussion of the therapeutics of the psychoses in so far as it differs from therapeutics as ordinarily resorted to, for there are conditions commonly met with among them that require treatment that is rare or absent elsewhere. Excitement, agitation and violence, for example, may occur in the delirium of fever but it is of short duration—transitory—while in the realm of mental disease these conditions may persist for weeks and require treatment. Only certain general considerations will be taken up here, while special matters pertaining to the different psychoses will be discussed in their appropriate places.

Hydrotherapy.—It is impracticable here to take up a full discussion of this subject. The student should consult special works for detailed information. It may be said, however, that the various forms of hydrotherapeutic devices form one of the more valuable of the additions to the means of treatment. This is true especially of the treatment of the excitements. In the absence of hyprotherapy the usual way of dealing with these cases is by manual or mechanical restraint, or by chemical restraint. All of these means are undesirable if avoidable. With a well equipped hydrotherapeutic outfit, however, their use may be reduced to a minimum.

Such an equipment would provide for the giving of hot baths—local or general: full baths, simple or medicated, at various temperatures: needle, rain, fan, spray, jet, spinal and Scotch douches, regulated as to temperature and pressure: wet packs, hot or cold sitz baths, etc.

These various measures have eliminating, stimulating, or sedative effects, according to circumstances. For toxic states, such

as chronic alcoholism, the stimulating effect of the hot air with profuse sweating, followed by the stimulating effects of the Scotch douche, are very valuable, while in excited cases some form of wet pack gives better results. In applying the wet pack the wet sheet is put on first after being sufficiently wrung out, usually of cold water, so as not to drip, carefully wrapped about the patient and tucked in, then a dry blanket is rolled about the patient and also carefully tucked in at the arms, made snug at the neck, and turned in at the foot, so that no draft can strike any portion of the wet body and neither arm nor leg can be voluntarily exposed by the patient. When skilfully applied it affords a sufficient restraint to the patient until the sedative effect is manifest. Excited patients treated in this way with a cold cloth or ice cap to the head often quiet down surprisingly and not infrequently go to sleep. The great advantage of this method is that it can be used in the home.

The warm bath of a few minutes' duration is also a very valuable sedative that can be used at home, but if used care should be taken to watch the heart if the patient is weak and when the bath is over the patient should be rapidly wiped off, wrapped up in blankets and put to bed without any exposure to drafts or cooling.

Continuous Bath.—The continuous bath is used for the most part in the treatment of the active and excited cases. The tub is made somewhat longer than usual to accommodate the patient at full length comfortably. The patient is placed in the tub (if desired he may rest in a canvas hammock attached to the sides), the water being kept by means of a regulating apparatus at from 95° to 97° F. The bath may be prolonged for several hours; in fact the patient may spend all day in the bath. In Germany, where this form of treatment originated, the patients are often kept continuously in the bath not only for hours but for days and weeks at a time, eating and sleeping there. It is remarkable that many of these disturbed patients seem after a time to like the warm sedative influence of the water, and I have seen a patient cry to go back in the tub after she had been taken out.

Another great advantage of the continuous bath is the good effect the water has upon the skin. The warm water keeps it soft and active and the tendency which exists in so many cases, particularly of paresis, to the development of bed-sores is largely

prevented; the patient resting in a medium of considerably higher specific gravity than the air a large proportion of the pressure is thus removed from the skin, so moderating one of the most prominent causes.

Refusal of Food.—This is one of the most annoying symptoms met with and yet is quite common among the depressed cases. It frequently has a serious influence upon the health of the patient, so it becomes of the highest importance to know how to meet it.

If the patient be in good physical condition it is wise to let him go for a time without food in the hope that the cravings of hunger will force him to eat, as once artificial feeding is begun it is liable to have to be continued. A strong, vigorous patient may be permitted to fast thus for as long as three days, while on the other hand, it frequently happens that when the patient is first seen he has already been temporized with so long that he is in such condition as to require feeding at once.

There are many methods of artificial feeding, but the method of tube-feeding is the only one that merits much attention. This method may be employed either by the nasal or the esophageal route.

The esophageal route is always to be preferred. The patient is fed sitting up in a firmly constructed, straight-backed arm-chair, unless a greatly enfeebled condition renders the position on the back imperative. The operator stands behind and gently forces the mouth open with a soft wooden wedge introduced on the left side, then with the patient's head held under his left arm he holds the wedge with his left hand, which is steadied by placing his little finger under the patient's chin. The patient's head thus secured, the arms and legs held by nurses, if necessary, the esophageal tube is dipped in the milk to be given and passed. A funnel, preferably vulcanized rubber, is now inserted in the tube by a nurse and the food slowly poured in.

The same position is assumed for passing the nasal tube. The tube used may be an ordinary male catheter. Before attempting to pass it it is well to examine the nose, particularly for polypi and deflected septum, and choose the side which will present the least obstruction. The tube then being dipped in the milk to lubricate it is passed along the floor of the nostril and down into the esophagus. Care must be taken to see that it does not enter the

larynx. If it should, the usual signs are severe strangling, coughing and cyanosis, while the air may be heard making a rushing sound as it passes in and out of the tube. It must not be forgotten, however, that in some cases, particularly in paresis, there is more or less anesthesia of the larynx and these signs may be in large measure absent. It is well, therefore, after the tube is passed to wait a few moments and see if the patient does respire through it, not forgetting that immediately after it first enters the esophagus a little rush of gas may escape through it from the stomach. The tube being passed, the food may be introduced through a funnel by gravity, as with the esophageal tube, but as this is a very slow process, owing to the small calibre of the tube, it is more satisfactory to attach a Davidson syringe, first filling it with milk, so as not to inject air, and then gradually pump the food through this.

In withdrawing the tube it should be pinched tightly to prevent a leakage as the end passes over the larynx.

The nasal tube is preferable particularly with those patients who resist very actively and who have a good set of teeth that the introduction of the wedge may injure. It is contra-indicated in cases of nasal disease and obstruction, while it is best to avoid its use if possible when there is anesthesia of the larynx.

The esophageal tube should be avoided when there is disease of the esophagus or cardia and in some cases of feeble heart action when the nasal tube can be passed with less commotion.

The usual mixture for feeding is a pint to a pint and a half of milk to which is added two eggs. In addition there may be added beef juices or other forms of liquid food and various medicines, particularly cathartics and hypnotics with the evening feeding. The following formulæ will be found useful. The vegetables are used in the form of a purée and may be thinned. The stewed fruits should be rubbed through a fine sieve.[1]

[1] Taken from "Tube Feeding in the Insane Hospital," by L. D. Hubbard, M.D. The Modern Hospital, August, 1920.

Regular Diets—I.

	Amount.		Protein.	Carbohydrate.	Fat.	Calories.
Milk	℥ xx	2½ cups	18.15	27.50	22.00	392
Eggs	ii	2	13.40	....	10.50	152
Butter	1 ball	1 ball	.15	....	12.75	119
Sugar	℥ i	2 tbsp	....	60.00	....	246
Total	....	....	31.70	87.50	45.25	909

II.

	Amount.		Protein.	Carbohydrate.	Fat.	Calories.
Malted milk	℥ xvi	2 cups	24.25	52.95	25.30	552
Eggs	ii	2	13.40	....	10.50	152
Butter	1 ball	1 ball	.15	....	12.75	119
Sugar	℥ i	2 tbsp	....	60.00	....	246
Total	....	....	37.80	112.95	48.55	1069

Low Protein Diets—I.

	Amount.		Protein.	Carbohydrate.	Fat.	Calories.
Milk	℥ xvi	2 cups	14.52	22.00	17.60	314
Farina	℥ i ss	3 tbsp	3.30	22.90	.42	112
Sugar	℥ i	2 tbsp	....	60.00	....	246
Olive oil	℥ ss	1 tbsp	....	....	13.00	121
Total	....	....	17.82	104.90	31.02	793

II.

	Amount.		Protein.	Carbohydrate.	Fat.	Calories.
Stewed apricots	℥ iv	½ cup	2.13	54.66	1.46	246
Cream	℥ iv	¼ cup	2.96	2.84	20.56	216
String beans	℥ iv	½ cup	.96	2.28	1.32	26
Butter	1 ball	1 ball	.15	....	12.75	119
Sugar	℥ i	2 tbsp	....	60 00	....	246
Water	℥ viii	1 cup	....	....	....	....
Total	....	....	6.20	119.78	36.09	853

III.

	Amount.		Protein.	Carbohydrate.	Fat.	Calories.
*Apple sauce	℥ iv	½ cup	.50	46.50	2.00	402
Mashed potato	℥ iv	½ cup	5.20	35.60	6.00	224
Milk	℥ viii	1 cup	7.26	11.00	8.80	157
Olive oil	℥ i	2 tbsp	....	....	26.00	242
Total	....	....	12.96	93.10	42.80	1025

* Mix—give with water which precedes feeding.

IV.

	Amount.		Protein.	Carbohydrate.	Fat.	Calories.
Cornmeal gruel	℥ viii	1 cup	7.70	19.04	8.22	186
Mashed potato	℥ viii	1 cup	10.40	71.20	12.00	448
Sugar	℥ i	2 tbsp	....	60.00	....	246
Butter	1 ball	1 ball	0.15	....	12.75	119
Water	℥ iv	½ cup	....	....	....	....
Total	....	....	18.25	150.24	32.97	999

Low Carbohydrate Diets—I.

	Amount.		Protein.	Carbohydrate.	Fat.	Calories.
Milk	℥ xvi	2 cups	14.52	22.00	17.60	314
Beef juice	℥ iv	½ cup	5.88	....	0.72	31
Eggs	ii	2	13.40	....	10.50	152
Olive oil	℥ i	2 tbsp	....	....	26.00	242
Total	....	....	33.80	22.00	54.82	739

II.

	Amount.		Protein.	Carbohydrate.	Fat.	Calories.
Beef juice	℥ iv	½ cup	5.88	....	0.72	31
Eggs	ii	2	13.40	....	10.50	152
String beans	℥ iv	½ cup	.96	2.28	1.32	26
Butter	1 ball	1 ball	.15	....	12.75	119
Olive oil	℥ i	2 tbsp	....	....	26.00	242
Total	...	....	20.39	2.28	51.29	570

III.

	Amount.		Protein.	Carbohydrate.	Fat.	Calories.
Beef juice	℥ viii	1 cup	11.76	....	1.44	62
Eggs	2	2	13.40	....	10.50	152
Spinach	℥ iv	½ cup	4.20	5.20	8.20	114
Olive oil	℥ i	2 tbsp	....	....	26.00	242
Total	....	....	29.36	5.20	46.14	570

Diet Providing Fresh Vetetables.

	Amount.		Protein.	Carbohydrate.	Fat.	Calories.
Milk	℥ xvi	2 cups	14.50	22.00	17.60	314
Sugar	℥ i	2 tbsp	....	60.00	....	123
Mashed potatoes	℥ iv	½ cup	7.80	41.40	8.00	336
Peas	℥ ii	¼ cup	6.16	13.43	3.13	110
Eggs	ii	ii	13.40	....	10.50	152
Total	....	....	41.86	136.83	39.23	1035

Approximately Salt Free Diets—I.

	Amount.		Protein.	Carbohydrate.	Fat.	Calories.
Apple sauce	℥ iv	½ cup	.50	46.50	2.00	402
Beef broth	℥ viii	1 cup	10.56	2.64	.96	64
Eggs	2	2	13.40	....	10.50	152
Butter	1 ball	1 ball	.15	....	12.75	119
Sugar	℥ i	2 tbsp	....	60.00	....	246
Total	....	....	24.61	109.14	26.21	983

II.

	Amount.		Protein.	Carbohydrate.	Fat.	Calories.
Oatmeal	℥ ii	¼ cup	5.60	23.00	1.00	126
Milk	℥ xx	2½ cups	18.15	27.50	22.00	392
Beef juice	℥ iv	½ cup	5.88	....	.72	31
Sugar	℥ i	2 tbsp	....	60.00	....	246
Olive oil	℥ i	2 tbsp	....	....	26.00	242
Total	....	....	29.63	110.50	49.72	1037

Feeding should be done at least twice daily—morning and evening. If the food is not well digested oftener and in smaller amounts.

Medication.—As the various psychoses are for the most part relatively chronic diseases, great care should be used in prescribing opium or any of its alkoloids, as otherwise a serious addiction may be encouraged.

One of the most frequent conditions which has to be met by drugs is *insomnia*. This is a symptom in many of the psychoses and often over a considerable period of time. Of the various hypnotics *paraldehyde* is one of the best, but of course is greatly limited in its use because of its very disagreeable odor and taste. *Sulfonal* is an excellent hypnotic, but somewhat slow in its action. It is best given at supper time and then will be active about bed time. It may be given to patients who refuse medicine by mixing with apple sauce, for example, as it has little taste. Its prolonged use should be avoided, as poisoning may occur with hematoporphyrinuria. *Trional* is equally as good a hypnotic and acts more promptly. In some cases in which the patient wakes up in the small hours of the morning a mixture of sulfonal and trional may be given, about 15 grs. each, at bed time. The trional will act the early part of the night and the sulfonal the latter. *Veronal* acts similarly and may be given in from 5 to 10 or perhaps 15 gr. doses. *Chloralamid* is a similar drug and may be given in a pleasant elixir, while in some more troublesome cases *chloral* may be indicated.

In the use of hypnotics care should be taken to interrupt the administration from time to time to see if normal sleep will not supervene and also to change from one to the other to prevent cumulative effects or addiction. It is of course understood that hypnotics should be resorted to only when other means have failed.

In the acutely excited conditions requiring sedatives about the only drugs that are efficient are the alkaloids of *hyoscyamus*, given hypodermically. Great care should be exercised in using this drug, as the various preparations are somewhat uncertain. The chemically pure alkaloids have not been so successful in my hands as the amorphous sulphate of hyoscyamine (Merck), which contains a mixture of the alkaloids. This drug may be given hypodermically in doses as high as 1/10 gr., or in a strong, vigorous

person without cardio-vascular disease, ⅛ gr. Its action seems to be assisted by 3 or 4 gtts. of Magendie's solution. It must be remembered that the pure alkaloids must not be administered in any such doses—usually not over 1/100–1/50 gr. Too small doses of the drug may not quiet the patient at all, but on the other hand only produce a degree of belladonna delirium.

Here, as with the hypnotics, drugs should not be used until other means have failed.

There has recently been developed a method of treatment particularly of the agitated depressions, serious habit disorders, and badly disturbed patients by *massive doses of sodium bromide* that seems to be of value. The bromide is given in from 100 grains to 300 grains a day on the average. WRIGHT[1a] reports that patients showing marked habit deterioration, such as soiling, wetting and destructiveness, become more cleanly and less destructive, and are better able to care for themselves; and patients given to outbreaks of violence, with tendency to assault, become much better adjusted to their environments, and their activities are more easily directed into useful channels following treatment. Agitated, depressed states show much less agitation, and take food more willingly; some recover. Some patients showing marked regression have their attacks terminated by the treatment.

In regard to this treatment it should be noted that these massive doses of bromide act quite differently from the doses usually given of this drug. This treatment is preferably carried out in a hospital under skilled care, particularly as it is still in the experimental stage. The way in which the results are brought about is not understood but it is perhaps by relieving tensions and so permitting the redirection of energy.

In regard to the whole subject of the giving of drugs, too much emphasis cannot be placed on the caution to avoid overmedication. It is not an uncommon thing to see patients admitted to a hospital suffering from the toxic effects of drugs, usually bromides and chloral. In this condition they not only suffer the deleterious effects of the toxemia, but the symptoms of the disease from which they are suffering may be hopelessly clouded.

Occupational Therapy.—This has, in recent times, become a valuable adjunct to treatment. It serves to divert the attention

[1a] Wright, W. W.: Results Obtained by the Intensive Use of Bromides in Functional Psychoses. State Hospital Quarterly, February, 1925.

and interest from a disintegrating indulgence in phantasy and so helps to get the patient back to a state of mind more accessible to direct appeal along psychotherapeutic lines. It hastens the time when the concrete problems of readjustment may be actively taken up.

Psychotherapy.—It is, of course, quite impossible in the limits of a work of this sort to discuss in a manner at all adequate the subject of psychotherapy. The literature of the subject has become very extensive in recent years and I think needlessly complicated, particularly as a result of the growing understanding and appreciation of the psychogenic factors in the etiology and symptomatology of the psychoses. The simple thing to remember is that in mental disorders that are due to mental causes something may be expected from a direct appeal to the mental conditions as a result of which the symptoms developed.

The human soul is filled with desires, vague longings, reachings out, and in its efforts to bring about a state of contentment, of satisfaction, often becomes hopelessly involved in attempts at adjustments to conditions which are quite impossible. The failure is felt keenly but the true cause is unknown. It is for the physician, after following the difficulties and intricacies, to take the patiently frankly into his confidence and by pointing out the exact mechanism of his distress, by putting his finger accurately on the difficulty, so give the patient his opportunity to meet the problem in an efficient way.

It cannot be too strongly insisted upon that the really potent factor in many forms of treatment, which are supposed to be based upon physiological principles, is the psychological appeal. The continuous bath, in spite of all that has been written about its physiology, to my mind accomplishes its results psychotherapeutically, it is a concession to the regressive tendency minus the harmful effects of narcotic and sedative drugs.

Psychoanalysis.[2]—The conception appears to be general that psychotherapy is summed up and included in suggestion. Aside from the fact that no one seems to have a very clear idea of just what suggestion really is this conception ignores the recent work

[2] White: Mechanisms of Character Formation. New York, The Macmillan Co., 1916. Jelliffe: Technique of Psychoanalysis, Nerv. and Ment. Dis. Mon. Se., No. 26.

that has been done along these lines. Suggestion really plays on the surface. The fundamental, underlying conditions are not reached by suggestion. These underlying conditions which produce the symptomatology of the psychoneuroses are often the same conditions that make suggestion possible. The accepted suggestion may be quite as much a pathological product as the various symptoms themselves.

When we have a case that we have decided to try psychoanalysis with, the first thing to do is to have a detailed talk with the patient covering the manifestations of the disorder and also touching the main events of the entire life so far as possible. We must remember that the symptoms with which we have to deal are only end products—the results perhaps of a mechanism that seems fairly simple but in the last analysis they are results made possible by all that has gone before—the entire psychic life of the individual. Our initial talk, therefore, serves not only to give us an account of the symptoms but to orient us with regard to the general make-up of the personality with which we have to deal.

During the course of this conversation it is inevitable that certain points will stand out as being important to pursue further. Here begins the real problem of psychoanalysis.

The method of procedure, the so-called method of free association, is roughly as follows: The patient needs to be alone with the physician in a room as far as possible from distracting influences —noises, bright lights, etc. To this end, too, the patient should be disposed as comfortably as possible so that physical discomfort or uneasiness will not interfere. It is well to have the eyes closed also, so that distractions from the visual field may be eliminated so far as possible. This general state of quiescence and passivity can be enhanced by having him observe some monotonous sensory stimulus that dominates the sensorium and shuts out less insistent and inconsiderable sensations, such as the buzzing of a faradic coil. In this condition the particular feature in the history that it is desired to pursue further is presented to the patient and he is asked to hold that event before his mind, to make no mental effort of any sort, such for instance as trying to remember, but to tell absolutely every thought that comes to his mind, no matter how fleeting, no matter how inconsequential it may seem or no matter how little bearing it may appear to have on the question at issue.

The theory of this procedure is that if the patient does not direct the thought in any way every idea that comes must of necessity have some relation to the event held before the mind about which enlightenment is sought. The monotonous sensory conditions are observed to prevent distracting influences from outside sources. The directions to the patient if carried out prevent distractions from inside sources.

It is difficult to secure this condition of passivity in many cases, especially in those persons who have never consciously used their minds and therefore do not know how to comply with the directions. It is difficult to get the patients to tell all the ideas that come. They naturally refrain from mentioning those that appear to be entirely fortuitous and to have nothing to do with the case. It will be seen from the theory, however, that these cannot be unimportant. They must bear some relation to the central event.

This is the method of attack to fill out the information acquired in the initial conversation. The symptoms should all be dealt with in this way for the purpose of uncovering the submerged complexes and disclosing their mechanisms. As we proceed new events will constantly be brought to light that must also be pursued, as must also all the significant events of the patient's life.

We must never forget, too, to investigate the dream life. Freud has shown that the mechanism of dreams is quite the same as that of the symptoms, so we may expect to get valuable information from this realm. The method of procedure is the same. The patient quite likely will deny dreaming at all at first but pursuit of the inquiry may very well disclose a rich dream life.

Nothing is too trivial to be worthy of analysis, nothing but may throw light upon the situation. All the little slips of the tongue, forgotten incidents, points at which two recitals of an occurrence do not agree, even witticisms it is necessary to trace out, while the dream life offers abundance of rich material for study.

This is the method of unraveling the tangled network of mental life. It takes weeks, months, perhaps years of constant effort. There is no royal road, no short cut to results. What it has taken a life time to produce cannot be laid aside in an hour. How different a conception dominates this method of procedure from that of the method of suggestion!

At times in the course of the analysis it seems as though no further progress were possible. At these points, and perhaps also to start with just after the initial conversation, it is well to try some word associations. This is done by taking the reactions to a list (see Chapter VII) of say one hundred words carefully chosen to cover the ordinary field of the average person's possibilities of complex formation. There may be distributed through this list words that for some reason may be supposed to have significance.

The method of procedure is to read the words to the patient, instructing him to answer immediately the first word or thought that comes to his mind after hearing the word read, and recording the time it takes for this reaction. The most practical way for recording the time is by a stop-watch graduated to fifths of a second. After the list has been completed it is repeated in the same way; the time need not be recorded, however, except that the patient is asked to repeat the same associations he gave the first time if he can recall them.

When one of the words in the list touches a complex, is a complex indicator, a marked disturbance in the reaction is noted. This disturbance shows in several ways: increased length of time; peculiarity of the type of reaction; failure to repeat the same association; and irradiation of the disturbance to the next one or two associations.

It will probably occur to many to wonder how it is that we can expect to find memories reaching back for years sufficiently well preserved to be helpful. As a matter of fact the memories of all repressed experiences are perfectly clear no matter how old. The explanation for this is that being repressed they are dissociated from the everyday events of life, they are kept in their original form, they have not been subjected to the attrition by and amalgamation with the intricacies of associational life. They do not fade out by this process of absorption as do the memories of indifferent events, but remain where, ever after, they may be brought to light by analysis and used as helps for cure.

It will be seen from this short description what a far-reaching method this is; a method of analysis from which no event of life, no matter how apparently trivial, is free; a method that in its results lays bare not only the immediate antecedents and causes of the symptoms. but the whole innermost life of the patient,

reaching back even to the period of early childhood. This of course takes time. A case of any complexity and difficulty quite generally takes several months, of at least two or three seances each week, to reach a final result.

This element of time is an important one for more than one reason. In the first place it may, and does, largely preclude the possibility of the general use of this method by the average practitioner. It should not, however, lead to adverse and destructive criticism of the method for that reason alone, as it has done in some instances. If the psychology upon which the method is based is true, we must of necessity accept it whether it meets with our convenience or not. Then it is rather silly after all to have a scientific position condemned because to carry out the resulting methods takes too much time. An effort might legitimately be made to improve upon the method but truth does not yield to attack based upon such principles.

There is some reason to believe, however, that the time needed to effect lasting results in this class of cases cannot be materially shortened. The cases of psychoneurosis come to us in a sea of trouble, tossing about on waves of emotion, far from shore and safety, blind and hopeless, resigned often to a life of suffering, desperate often at seeing no hope of release, but quite unable to help themselves at all. Of course in the nature of the case the real troubles, the buried complexes not only are not known by the patient, but they cannot be known and the obvious explanations for the symptoms, that the patient often has ready at hand, not only are not the real explanations, but they cannot be. Nevertheless, the original repressions and the dissociations in consciousness resulting are quite characteristically due to a false attitude towards the problems of life. The young woman in love with some one of whom the father disapproves may have a fleeting thought that the father's death would straighten matters out and enable her to marry without further opposition. Now instead of reacting to such a thought naturally by realizing that as a conscious human being such a thought was merely an expression of her wish to marry the man she loved and an expression of a natural desire that the obstacle in the way be removed, and putting it quietly and without passion out of consideration as impossible because of its unethical character, in fact unworthy of even

contemplation, she becomes terribly horrified that such a thought could even find entrance to her mind and represses it immediately as not only too terrible for consideration but with a sense of chagrin, shame, self-reproach. Such a putting aside, side-tracking of a disagreeable thought, such a refusal to meet an unwelcome quest in the open, frankly, such a refusal to even see the disagreeable does not make for efficient reaction, does not enable the individual to adequately adjust.

These patients come with no adequate philosophy of life, no raft with which they can safely reach shore in their sea of trouble. They have narrow, distorted, perverted viewpoints and these it is necessary to fully appreciate in the course of the analysis, for these must be corrected. They cannot be corrected by a pronunciamento, by laying down what the analyzer believes to be the law and the gospel on the different questions involved but must be slowly changed by a process of reëducation in which the personality of the physician and his attitude towards the whole situation plays a prominent part. And herein lies the importance of the element of time.

This reëducation of the patient is dependent perhaps more upon the attitude of the physician than upon any particular thing he may say. The personality of the physicion plays a certain rôle. Whereas theoretically his personality should be nil in its effects if the method were accurate, still the method is not perfect and has to be carried out by human means. The patient, before the analysis has proceeded far, sees that to go on means to bare his very soul. One does not confess his innermost thoughts to every one, the hysteric, for example, is not impelled to unburden himself of his story to the passerby, like the ancient mariner. Quite the contrary. The whole trend of his malady is toward concealment, repression. The personal characteristics of the physician do, I think, play some part, although I am willing to admit that this part may be less in proportion to the perfection of the method.

Now as to the physician's attitude. In the first place his attitude should be one of absolute lack of critique. The physician is merely after facts, for by the analysis he hopes to help the patient by removing the symptoms. He will in the course of his analysis hear many intimate thoughts, learn of many wrong, perhaps disgusting, or even criminal acts. He should express no

surprise. They are but facts, that is all. The patient must not be blamed or laughed at. He has already done that for himself many times. In fact that is often the trouble. Self-blame may have been the cause for the original repression. His moral sense is already keen, in fact perhaps too keen, and an element of prudery or overscrupulousness must be removed for a more healthy attitude of mind.

Sympathy is likewise not to be indulged in. The patient does not want it and it is not helpful. The attitude of the physician, however, has an element the most important factor in sympathy—understanding. To be understood is indeed a privilege. For years the psychoneurotic has failed of being understood, has refrained from talking to persons about himself, perhaps after one or two disagreeable experiences, for fear of being laughed at. In fact, he has failed to understand himself. Now to find some one who does understand—what a relief!—and it is helpful in no small degree in the progress of the work.

It is these elements in the attitude of the physician—his lack of critique and his understanding—that are the quiet determinants, the basis of what is known as the transfer, which make through the weeks and months of psychoanalysis for a more wholesome, a more robust philosophy of life, and finally when all the submerged complexes and mechanisms of the symptoms have been uncovered our patient emerges literally born again. The disordered material which the patient brought to us has, if we have been successful, been sorted over, rearranged, added to, and built into a new and an enduring structure.

Prophylaxis.—It is to be hoped that some day we shall have a sufficient understanding of character to be able to pick out those types liable to develop psychoses and to protect them from that class of stresses that they are least able to withstand. At present we can hardly be said to approximate to this. The neurotic child, however, can be recognized and should be safeguarded, especially throughout school life and the period of puberty and adolescence. Some day, perhaps, competent advice will be sought by parents as to the best methods to be employed in the rearing of their children. Until then we are largely helpless in the matter of prevention.

With the advance in the study of the individual psychology of the psychoses many psychogenic etiological factors have been

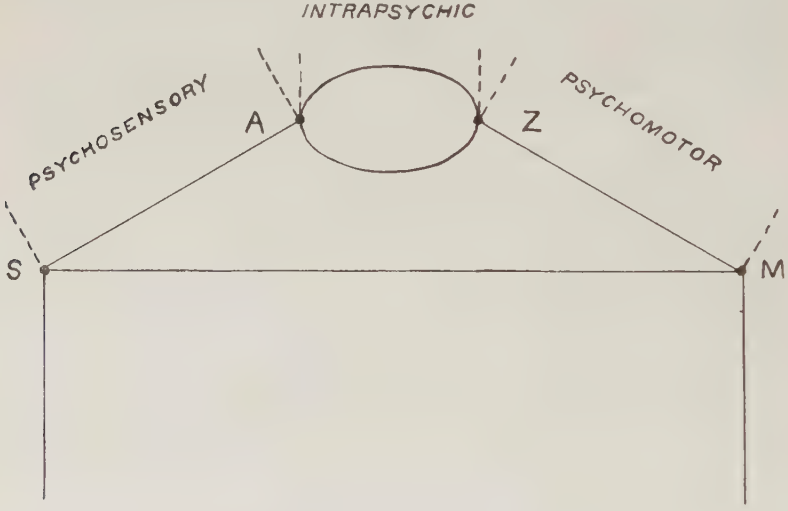
uncovered which offer considerable hope for the future of prophylaxis in this branch of medicine. Certainly a careful study of cases which have recovered will often indicate clearly the things to avoid in order to prevent another breakdown.[3]

[3] For a discussion of institution care and various problems, social and other, of the mentally ill see White: The Principles of Mental Hygiene. New York, The Macmillan Co., 1917.

CHAPTER VII.

General Symptomatology.

In describing the general symptoms of the psychoses the scheme of the several mental processes outlined in the preceding chapters will be adhered to and the principal disorders of each taken up in turn. Certain symptoms, however, associated more particularly with special psychoses will be left and discussed in the chapter in which that particular psychosis is described.



S = SENSORY PROJECTION FIELD
M = MOTOR PROJECTION FIELD
A = INITIAL IDEA
Z = TERMINAL IDEA

Fig. 2. Showing subdivisions of mental processes.

Before going on to the discussion of the special symptoms it may be well first to call attention to a slight modification of the diagram used previously to illustrate the mental processes for the purpose of illustrating some general principles involved. (See Fig. 2.)

In this diagram everything from *S* to *M*, inclusive, is included in consciousness, the term used to denote the sum total of mental life. This is indicated by the term used: for example, psychomotor would refer to motor acts originating in consciousness. A reflex act would thus not be included—it is not a psychomotor act, taking place entirely without the realm of consciousness. Taking then this tripartite division of consciousness, we may follow WERNICKE[1] and say that in each of the three territories there may be three types of disorder, as follows:

Psychosensory.	*Intrapsychic.*	*Psychomotor.*
Anesthesia.	Afunction.	Akinesis.
Hyperesthesia.	Hyperfunction.	Hyperkinesis.
Paresthesia.	Parafunction.	Parakinesis.

Bearing these general principles in mind, we will proceed now to the discussion of the special symptoms.

DISORDERS OF PERCEPTION.

Illusion.—An illusion is an inexact, or inaccurate, perception. The information conveyed to the mind by the sense organ is misinterpreted, so that the source of the sensory impressions in the environment is not appreciated at its true value. A strap lying on the floor may be perceived as a snake, the sighing of the wind may be perceived as the whispering of a human voice, a bad taste in the mouth may be perceived as poison, and so on throughout the different sensory realms. The distinguishing thing about an illusion is that an actual something in the environment is perceived but the perception is not a correct one and conveys false information to the mind.

Hallucination.—An hallucination, on the other hand, is generally conceived to be a perception without sensory foundation in the environment. A snake is seen on the floor where there is nothing which could be mistaken for a snake, the floor is bare; human voices are heard where there are actually no sounds in the environment which could be interpreted as such; poison is tasted where there has been nothing in the food or mouth which has given origin to the taste. The distinguishing feature of an hallucination then is a perception without there being anything in the environment to perceive.

1 Wernicke: Grundriss der Psychiatrie.

Recent studies, however, have made it highly probable that a large number of what have been supposed to be hallucinations are in reality associated with pathological, or even at times physiological processes occurring in the sensory end organs, so that, with reference to the eye and ear, for example, they might be said to be of entoptic or entotic origin respectively.

So far, however, as any given erroneous perception is concerned it really matters little from the point of view of its significance as a symptom of mental disease, whether it be classed as an illusion or an hallucination. The mental process in both instances is identical. In practical use the two are not often distinguished, but false perceptions are generally spoken of as hallucinations and as the mental process is the same in both hallucination and illusion the necessity for their distinction does not arise and the use of the term hallucination serves the purpose very well.

Using the term hallucination then to include the phenomena of illusion, there are a number of considerations to take up regarding their different forms and their manifestations in the various sensory areas.

Pseudo-hallucinations.—Pseudo-hallucinations, also called *psychic* and *apperception hallucinations,* seem to occupy a position midway between imagination and the fully developed form of hallucination. The patient does not have the same conviction of their external reality and may even appreciate their subjective nature while still believing them to be brought about by external agencies, *i. e.,* God or his enemies—as in the case cited by KANDINSKY[2] of the patient who had a pseudo-hallucination of a lion which appeared to him and laid its forepaws on his shoulder. The patient appreciated that he saw the lion only with his mind's eye and was not afraid as he otherwise would have been, and interpreted the vision as signifying his allegiance to England.

Pseudo-hallucinations differ from imagination in the fact that the sensory elements have a greater objectivity and occur independently of the volition of the subject. They, in general, differ from hallucinations in having somewhat less objective reality and further are more often in consistent harmony with the content of

[2] Kandinsky, V.: Kritische u. klinische Betrachtungen im Gebiete d. Sinnestäuschungen (1885), p. 42, cited by James, William: The Principles of Psychology, Vol. II, New York, Henry Holt & Co., 1890.

consciousness—do not obtrude themselves suddenly and unexpectedly into the field of consciousness as hallucinations often do, particularly auditory hallucinations. They not infrequently involve two or more sensory areas and constitute an element in the so-called dream states.

Hypnagogic Hallucinations.—These are hallucinations which occur in the intermediate state between sleeping and waking. Their principal importance for us lies in the fact that they may readily be mistaken for hallucinations occurring in the waking state. If the possibility of confusion is kept in mind the differentiation can easily be made without trouble. The following case illustrates this condition and the principles of differentiation:

The patient, a middle-aged man, claims to have numerous visions. He has been a spiritualist for years and often sees visions of deceased persons. He describes one occurrence when he had a vision as follows: "I went into the cellarway to fill my lamp, and after filling the lamp I saw the road from Catherine Holliday's north to the county line. There was no significance attached to that, but I sat there and presently I saw a hand; a chubby kind of fleshy hand and the finger nail was grown down over the end of the front finger a little over a quarter of an inch wide, but it grew clear over the end of the finger. I said that is a funny finger, and I sat a second more and I heard the words, Ezra Perkins, and I says, 'why, I know Ezra Perkins.' Presently all was changed and I saw a house, door opening to the east. In one room was a ground floor and a wood bench; then I saw a small room with a painted floor, painted yellow, a small bedstead with no banister or curtains around; on the edge of the bed I saw a small manila cord or rope. Then I looked as though I were passing by buildings and I saw a house. On the north part of the building the blinds seemed to be red and dark; the south part was green and there were flowers in the windows. Then I saw Hiram Brinsmead apparently coming out to the road. Then I saw a small boy with light hair. Then I saw the interior of a room on the east side of the house, a lady reclining on the bed bolstered up on some pillows. She lay quartering across the bed from the southeast to northwest. She had a pink dress on, made plain with the exception of a ruffle or goring piece around the sleeves and the same around the skirt bound around with white, and was reading the Bible.

"That is all there is of that only it is imperfect, but it is worded just as I can recall it."

This description bears on its face certain evidences of the dream state. The sudden shifting of the scene and the following of one event upon another without any apparent reason for the association is characteristic of dreams. Further than this, it is to be

noted that the surroundings were favorable to sleep. The percipient starts to fill his lamp during the latter part of the afternoon, he sits down on the landing after it is done (this would indicate that he must have been tired.) He is sitting in this position when the visions appear. He must have sat there, at his own estimation, for about twenty minutes, for when he arose he saw it was just getting dark and it was quite light when he sat down. It is also noteworthy in this case that descriptions of visions taken at considerable intervals vary considerably and this variation is most marked in the direction of forgetfulness, the later descriptions showing a tendency to omit many of the facts contained in the former, although there is also a tendency to include certain other instances not at first mentioned. This latter tendency is, however, not so marked. The former tendency is quite characteristic of dreams, as any one can testify to his own satisfaction who has ever had occasion to recall a dream. A dream which on awakening in the morning may be quite well remembered, is in the course of a few days or even hours quite hazy in its outlines, if no efforts have been made in the meantime to recall it. The latter tendency is equally characteristic of amnesic states generally.

In addition to the above reason for considering these visions as having occurred in a dream state of consciousness, the percipient stated at one time, while describing these same visions, that after they had passed he arose and stretched himself, a very common evidence of having been asleep. He denied this, however, afterwards. He also describes one other vision after which he had a "sort of tired feeling" for a minute or two which, however, soon passed away.

Auditory Hallucinations.—When these are elementary, that is, are largely sensory in character with few associations, they are known as *akoasms.* Such would be simple sounds, as buzzing, crackling, ringing, and the like. The more complicated hallucinations which are conceived by the patient to be "voices"—verbal auditory hallucinations—are known as *phonemes.*

The "voices" say pleasant or unpleasant things but usually the character of the remarks are consistent throughout and in harmony with the general mental condition of the patient. They may be heard in both ears or in only one ear and be of any timbre. Rarely different voices are heard in the two ears, as in one of my patients who heard Christ talking to her in her right ear and the Devil in

her left. The "voices" may be located externally or on the contrary be heard coming from different parts of the body, *i. e.*, the "epigastric voice." Sometimes the patients, when closely questioned, will say that they do not hear any sound, any spoken word, but as described by one of my hallucinated cases, "it was more as if they conversed with her directly through her mind."

More obscure conditions are those in which the patient believes that his thoughts become audible, that he can hear his thoughts before he can speak them.

In patients suffering from auditory hallucinations, ear disease resulting in various degrees of deafness is common.

Visual Hallucinations.—Elementary hallucinations, in which the sensory element is maximal and the associational element minimal—*photomata*—occur as flashes of light, sparks, colors, and the like. All degrees of elaboration occur from these simple conditions to the most complex visions. Hallucinations of sight are more apt to be pleasant than those of hearing, but they too are frequently disagreeable, often terrifying, as visions of hell and of all sorts of noxious creatures so common in the various deliria. Visual hallucinations occur not infrequently in the blind.

Hallucinations of Taste and Smell.—Hallucinations of these two senses are quite apt to be associated and are almost uniformly disagreeable, as in one of my cases, a middle-aged woman, who claimed she smelled and tasted the blood of people who were killed in the hospital. The blood was smelled when the meals were being cooked and tasted at meal time in the food. Poison is frequently complained of as being tasted in the food and noxious and poisonous vapors are often smelled.

Haptic Hallucinations.—The Various special senses located in the skin—touch, pain, heat and cold—may be the subject of hallucinations. The most common are indefinite disturbances of the nature of paresthesia, hallucinations of animals crawling over the skin (deliria), or under the skin, particularly at the finger tips (cocainism). Hallucinations of touch are not uncommon, but are usually associated with other disorders of perception.

Hallucinations of the Organic Sensations.—The most common of these are peculiar and often indescribable sensations coming from the internal organs and giving rise to such beliefs as: the bones are broken, the brain dried up, an immense tapeworm is

coiled up in the lungs, the bowels are stopped up, there is no stomach, and the like.

Disturbances in the realm of the sexual sensations also belong under this head and lead to such ideas in women as that they are violated while they sleep, and in men that their organs are abused and their semen drawn off.

Kinesthetic or Motor Hallucinations.—These are sensations of movement of some sort. The sensations from muscles, joints, the tendons may be involved, as may also the static sense, owing to labyrinthine disturbance. Disturbance in these sensory areas give rise to hallucinations leading to the belief that the body has undergone a change in position. One patient complained that men came to her room nights, carried her away, subjected her to improper and indecent treatment and then brought her back.

A more common motor hallucination is the verbal motor hallucination. Patients who complain that their thoughts are audible may be brought to this belief by feeling their lips move as in speech, and inferring that they are involuntarily speaking or being made to speak.

Reflex Hallucinations.—This variety of hallucination is based upon secondary sensations which are sensations arising in one sensory field when the stimulus has been applied in another sensory field. Thus stimulation of the eye may produce sensations of sound, stimulation of the taste bulbs may produce odors, etc., etc. The following cases illustrate these conditions:

Mrs. J., æt. 25 years, in good general health, complains of naso-pharyngeal catarrh and tickling throat, causing cough. She has deflected septum and enlarged lingual tonsils. Operation upon these and subsequent application of ordinary styptics have been accompanied by the odor of almonds located on the side of the nose.

Mrs. B., æt. 28 years, complains of having a bad odor in her breath which seems most acute to her in her nose. Her friends tell her that they cannot detect any unpleasant odor. She seeks special medical advice because she appreciates this odor and suspects friends of being too courteous to tell her of it. She is in good general health with a slight hacking cough and a tendency to clear her throat.

Examination shows the nose to be in normal condition throughout, the nasal vaults are unusually accessible, thus leaving no doubt as to their healthy condition. Pharynx and larynx normal.

The nostrils were alternately plugged, the lips closed and air from each nostril and the mouth tested separately. Not the slightest odor could be detected, though she appreciated it herself as being very disagreeable.

Two small lingual tonsils were more closely examined and upon the posterior side of each a minute morsel of food was found. This was removed, but on examination was found to have absolutely no odor. It had not undergone sufficient change to disguise its character—it was bread. Shortly after its removal the bad odor grew less. Both tonsils were at once removed and the patient sent home. At the end of two days all odor had disappared. At the end of four days there was still no odor, but it was induced by touching the neighborhood of the tonsils by a small pledget of cotton carrying a weak solution of citric acid. At another time it was induced by a very weak faradic current. The odor had not reappeared at the end of six weeks except by stimulating the taste goblets, and the patient was entirely relieved of the hacking cough.

This latter case was truly hallucinated by a secondary sensation, although she was not psychotic. It can readily be seen, however, how such a phenomenon occurring in a predisposed individual or in one already over the border line might soon form the focus of well-marked persecutory delusions.

The phenomena of secondary sensations, the so-called sound photisms, light phonisms, pain photisms, etc., have been known for a long time and are not particularly infrequent. BLEULER and LEHMANN[3] found them present in one form or another in seventy-six persons out of a total of five hundred and ninety-six, *i. e.*, twelve and one-half per cent. In most all of these cases, however, that have come to my attention, the primary and secondary perceptions are both present in consciousness, and the patient usually has no serious difficulty in distinguishing the false perception.

The following case, however, will illustrate how these secondary sensations may become true hallucinations:

D. C., a young woman admitted to the hospital with an acute psychosis of the confusional type with dream-like hallucinations, both visual and auditory. She saw all sorts of visual images, processions of soldiers and the like, and also heard voices. After recovery said that the figures she saw were in motion and the principal direction of their motion was downward, so that she had to strain to keep them up in the visual field; also saw patches of light which moved by preference to the right.

Examination shows vision 20–20 for both eyes, with slight astigmatism and slight photophobia, with somewhat abnormally red retinal reflex. Septum slightly deflected to left into middle meatus. Right middle turbinated is bulbous and impinging on septum. There is a sub-acute catarrhal

[3] Cited by Hyslop, Theo. B.: Mental Physiology. Philadelphia, P. Blakiston's Son & Co., 1895.

naso-pharyngitis, probably following diphtheria, which she had had three times. Ears show slight retraction of drum membrane with slightly shortened cone of light in each side.

Stimulation of the retina by having patient look at light of an Argand burner produced sound as of ringing bells, which lasted forty-two seconds after the light was turned off and eyes shut. In trying this experiment again the sound developed in twenty-seven seconds after the stimulus was applied, and had ceased in twenty-two seconds after it was withdrawn.

In this case the motions of the visions would indicate that they were due to muscæ volitantes. Particularly is this indicated by the effort required to keep the images within the visual field. There is present, however, a well-marked catarrhal condition of the pharynx, with abnormalities of the septum and right middle turbinated which have resulted in a moderate grade of middle ear disease. There are also present on experimentation light phonisms.

The sensory falsifications probably took their origin in the extremely sensitive eye from the misinterpretation of floating bodies in the vitreous, the patient seeing these bodies against the light walls and ceiling of the room as she lay upon her back. The constant stimulation of these sensitive eyes brought about the light phonisms which were interpreted as voices, the auditory apparatus being in an especially susceptible state, due to the summation of stimuli from the abnormal end organ.

Many kinds of secondary sensations have been described, any one of which may quite possibly give rise in a disordered mind to hallucinations, thus not only sound photisms, light phonisms and simiuar combinations in the region of the special senses are known, but the more obscure region of the cœnesthesis is sometimes involved, and Gruber has described colored temperature, colored movement, colored resistance, movement hearing, temperature hearing, resistance hearing and many other combinations equally complicated.

While the pathological state of a sense organ may indicate why it was chosen, so to speak, to hallucinate with, only psychoanalysis can determine the meaning of the hallucination in psychological terms. Thus the visual hallucinations of the blind are dependent upon a fundamental wish to be able to see. The particular form they take is of course more individually determined.

Clouding of Consciousness.—The process of perception, as we have seen, is dependent upon sensations coming from with-

out, which, however, must be of sufficient strength to force their way into consciousness and wake up, as it were, the remains of former sensations with which they become associated. If sensory stimuli have not this strength they may be said to be *inadequate.* We are constantly beset on all sides by such inadequate stimuli. The presence of my clothes on the different parts of the body ordinarily causes no appreciable sensations and thus gives rise to no perceptions. The many trifling noises going on about me while I am absorbed in writing these lines are not heard. The strength of the several sensory stimuli is not sufficient to cross the *threshold of consciousness,* their *threshold value,* as it is called, is too low to result in perception. In various diseases and conditions the threshold value of sensations is greatly altered. This is very marked in certain of the deliria, for example, delirium tremens. In this disease we find the patient wholly occupied with his terrifying visions and quite oblivious to the outside world of realities. Loud sounds fail to attract his attention, the nurse comes and goes without interrupting the course of his delirium. Sensory stimuli of ordinary strength, or even more than ordinary strength, fail to cross the threshold of his consciousness and cause perception. If, however, the patient be taken firmly by the shoulders and held or even mildly shaken while a question is practically yelled at him, we may find that he will give a perfectly lucid and correct answer. The strength of the sensations has been sufficiently increased, the resistance has been broken down, perception takes place.

This condition of clouding of consciousness may exist in any degree, from a scarcely noticeable departure from clear consciousness to actual coma, and as we can readily see must be the cause of very imperfect perceptions of the environment. Ordinary stimuli are not appreciated at all, while those that have sufficient force usually only give rise to perceptions for the moment and are never adequately assimilated. Thus we find this condition prominently in evidence in the various deliria, where it is usually associated with disturbed affects, disorders of the train of thought, and hallucinations.

This can perhaps be better understood if we will study some of the characteristics of consciousness at any given moment. At such a moment there are numerous sensory stimuli which have forced themselves over the threshold of consciousness, and,

as it were, are contending for supremacy—for recognition. All, however, cannot be equally clearly recognized, so it comes that one arouses clear perception while the others are only faintly perceived. While I am writing these words the word I am at the moment penning is perceived clearly, while the other words, the books lying about me on the table, the striking of the clock in the adjoining room, and many other sensations are only indefinitely, hazily perceived. The most clearly perceived sensory stimuli are said to occupy the focal point of consciousness, while the other sensations have only a marginal value. This can be better understood by reference to Fig. 3—where the particular moment of

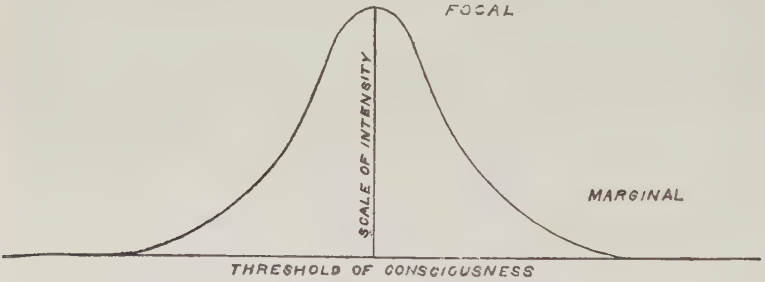


Fig. 3. A wave of consciousness.

consciousness is represented by a wave—*wave of consciousness.* The apex of the wave would then be the focal point of clearest perception, the base of the wave the threshold of consciousness and sensations crossing this threshold can be seen to have any degree of clearness as they approach the focal point. The height they reach on the wave would then be a measure of their intensity for that particular moment of consciousness.

Dream States.—This term is applied to certain conditions because of the resemblance they have to conditions of dream consciousness. The mind is occupied by numerous dreamy ideas, and usually also by multiform hallucinations which may take the form of visions. Hallucinations often occur in more than one of the sensory territories contemporaneously, but when this is the case they harmonize and are consistent with each other. For example, the patient who is terrified at the flames she sees near her bed, feels also their heat. Clouding may be present, the threshold value of sensations being raised so that no impressions of ordi-

nary strength reach consciousness, the result being that the patient may be quite oblivious of his surroundings. Unlike the normal dream state, however, psychomotor reactions occur corresponding to the content of consciousness.

Disorientation.—Orientation implies the correct apprehending of the environment, and one is said to be fully oriented when he understands his own position and relation with reference to the different aspects of his environment. These aspects are three, viz.: temporal, spatial and personal. *Temporal orientation,* then, would imply correct answers to such questions as, in what year were you born? what year is this? what day is this? *Spatial orientation* would imply correct answers to, what city do you live in? on what street? *Personal orientation* would imply a correct knowledge of who the individuals were with whom the patient came in daily contact, their official positions, their names, etc. Disorientation is the reverse of this condition and implies a lack of apprehension of these three aspects of the environment either singly or together.

Meaning of Disorders of Perception.—*Hallucinations* represent material, more or less frankly, which has suffered repression and which during a relaxation or diminution in strength of the repressing forces has broken through into consciousness. They stand for infantile desires which should have been left behind in course of development but again become active as a part of the symptomatology of the mental illness. They may represent very frank sexual indulgences (auto-erotic, incestuous, sado-masochistic) curiosity, interest in excretions, or they may be disguised in any number of symbolic ways as in the dream. They may be acceptable as in the malignant regressions, or they may be wholly inacceptable as the accusatory voices. They may represent very concrete desires such as sexual assaults, active or passive, or represent the libido in the form of terrifying, loathsome and dangerous animals as in the deliria. They may be frankly compensatory for a feeling of inferiority by clothing the patient with the symbols of power or quite the contrary by representing the instruments of torture to which he is to be subjected. Their interpretation is arrived at by the same methods as the meaning of dreams, that is, by the psychoanalytic technique.

Clouding of consciousness, dream states, and *disorientation* are symptoms of a very active state of the intra-psychic conflict in

which the unconscious material is not acceptable to the ego, nor has any mechanism of reconstitution of the repression nor of compromise as yet been worked out. The condition is one essentially of *confusion,* the patient cannot assemble his forces for progress in any given direction.

Disorders of the Content of Thought.

Delusion.—A delusion is a false belief, but as such is not necessarily evidence of a psychosis. Many false beliefs have no pathological significance whatever. A man may believe that today is Thursday when in fact it is Friday. That is a false belief while it lasts, but has only the significance of a mistake. The belief of certain savages that dreams represent the wanderings of their disembodied spirit we know to be false, but not an evidence of mental disease. False beliefs or delusions, then, may be either normal or abnormal, and it is for us to endeavor to distinguish what constitutes a belief first as false and then, as such, what characterizes it as abnormal. There are three main characteristics of delusions in general. First: they are as a rule very evidently not true to fact, highly improbable, even manifestly impossible often to the extent of being bizarre. Such, for instance, are the delusions of great wealth, of royal lineage, and those of a certain class of patients who believe that they have no stomach, no brains, even that they have no head. Second: they cannot be corrected by an appeal to reason; not originating in experience they cannot be corrected by an appeal to experience. It is impossible to argue the patient out of his delusional beliefs. Third: they are out of harmony with the individual's education and surroundings. The sick Fijian lying upon his back and crying for his soul to come back to him is but exemplifying the belief of the race that sickness is due to the fact that the soul, or a part of it, leaves the body. Should we find a modern American, who had had the usual public school advantages, acting thus we would be justified in supposing him unbalanced.

It sometimes happens, however, that a false belief does not show any of these characteristics and yet may be pathological. A woman who says her husband is untrue to her has not voiced a belief which has on its face any evidences of impossibility, and with no knowledge of the facts it cannot even be said to be improbable, and while not susceptible to the test by argument,

it is certainly not out of harmony with the individual's education and surroundings. In such cases it becomes important to study the origin of the belief, to find out upon what sort of foundation it is reared. If we find that it resulted from the patient's having awakened on several occasions during the night and found her husband's legs cold, and having reasoned from this that he had been out of bed to keep an appointment with his paramour in an adjoining room we will at once have no difficulty in stamping the delusion as pathological because of being founded upon and constructed of ideas which do not logically or reasonably lead to the conclusions reached.

Delusions may be classified for our purpose into *fixed* and *changeable, systematized* and *unsystematized, endogenous* and *exogenous.*

A *fixed delusion* is one which seems to be firmly imbedded in the mind and is continuously adhered to by the patient, while *changeable delusions* are constantly changing and giving place one to another.

An *unsystematized delusion* does not enter into organic combinations with the other facts of consciousness, but stands apart and seems not to have been assimilated. While it may be fixed, it exercises no special control over the patient's conduct; he seems to rest with its statement alone, unable to substantiate his position by cogent argument or example. A patient who believes that all the bones of his body are broken, but nevertheless goes about his affairs as usual, has an unsystematized delusion.

A *systematized delusion,* on the other hand, is not only assimilated and associated with the other facts of conscious experience but forms a motive power for conduct. It is supported by reasons, by arguments, and by appeals to experience, it is acted upon as if it were an actual fact, and finally it may so reach out its influence by association with all the conscious experiences of the individual that the whole life of the patient is centered about and becomes secondary to it. The patient with a systematized delusion of persecution regulates his whole life in order to avoid his persecutors. The food is carefully tasted for poison and perhaps discarded, the bed he sleeps in must be insulated to prevent electric currents being applied to him while he sleeps, the key-hole and all cracks stopped up so that noxious vapors cannot be injected through them. If the patient is asked for an explanation of this

conduct he is ready with interminable reasons and appeals to experience while his arguments are woven together with much ingenuity and no little logic. His delusion is systematized.

The distinction of endogenous and exogenous is thought by FRIEDMANN[4] to be of greater importance than the distinction of systematized and unsystematized.

The *endogenous delusion* is characterized by clear logic, contact with reality, taking its origin from actual occurrences, and the important distinction that it represents a delusional unfolding and elaboration of the normal thought processes of the patient. In other words there has been no marked change in the personality, the individual is the same sort of person as he was before the growth of the delusion. The delusion seems to be an abnormal expression of his character and quite characteristically after recovery from the psychosis the patient cannot be made to understand the delusional character of his experiences—he lacks insight.

The *exogenous delusion* on the other hand is engrafted, as it were, upon the personality and exists there parasitically forming no part of it. These patients if they recover, cannot possibly understand how they could have entertained such ideas as their delusions.

A further classification of delusions is based upon WERNICKE'S classification of concepts. It is a very valuable and practical one from a clinical standpoint. WERNICKE classifies concepts as to whether they relate to the outside world, including other persons; whether they relate to the individual's own personality, or whether they relate to the individual's own body and speaks of the psychoses which involve these three orders of concepts respectively as *allopsychoses, autopsychoses,* or *somatopsychoses.* A person with a delusion of persecution would be suffering from a disturbance of his allopsychic consciousness; if he had a delusion that he had committed the unpardonable sin his autopsychic consciousness would be involved, and finally if he believed his intestines to be stopped up, the disorder would be in his somatopsychic consciousness. It is quite possible, even common, to have combinations of these varieties, and indeed all of them in the same patient, so the patient might be said to be suffering from an allo-auto-somatopsychosis.

[4] Friedmann, M.: Studies in Paranoia, Nerv. and Ment. Dis. Monograph Series, No. 2.

Before leaving the subject of delusions it is well to devote a few words to a popular misconception regarding them. If the psychoses are conditions arising as a result of maladjustment between individual and environment, we see how absurd some of the views are which grew out of the conceptions of the old "faculty psychology," and neglected to consider the mind as a mechanism of adjustment, all parts of which were interrelated with one another. Perhaps the most widely held of the erroneous beliefs about the psychoses which continues to evidence the influence of the old psychology is the belief in a monomania, or, as it is sometimes referred to, a partial insanity. The belief, in other words, that a person may be insane on one subject and sane on all others. It is true that we may have a psychosis developed about a centralized event and fairly well circumscribed in its relations to that event but it is only by taking the view that an idea is a thing apart without organic connection with the personality of the individual that we can conceive of a person with a single wrong, delusional idea, yet perfectly all right every other way. The formation of an idea is dependent upon too many processes and cannot spring into being independently of them and if it is itself pathological we must look to the mechanism of its growth for its explanation. Mercier[5] puts this very well when he says:

"The delusion is not an isolated disorder. It is merely the superficial indication of a deep-seated and widespread disorder. As a small island is but the summit of an immense mountain rising from the floor of the sea, the portion of the mountain in sight bearing but an insignificant ratio to the mass whose summit it is, so a delusion is merely the conspicuous part of a mental disease, extending, it may be, to the very foundations of the mind, but the greater portion of which is not apparent without careful sounding. Precisely how far this disorder extends, beyond the region of mind occupied by the delusion, it is never possible to say; but it is certain that the delusion itself is the least part of the disorder, and, for this reason, no deluded person ought ever to be regarded as fully responsible for any act that he may do. The connection between the act and the delusion may be wholly undiscoverable, as the shallow between two neighboring islands may be entirely hidden by the intervening sea. But

[5] Mercier, Charles: Criminal Responsibility. Oxford, 1905.

nevertheless, if the sea stood a hundred fathoms lower, the two islands would be two mountain peaks connected by a stretch of low country; and, if the hidden springs of conduct were laid bare, the delusions and the act might be found to have a common basis."

The delusion is a compromise formation, it is the result of the psychological conflict and may therefore be compared to scar tissue. It is the best result that can be reached under the circumstances yet not a normal, wholesome one.

Meaning of Delusions.—The meaning of the delusion is similar to that of the hallucination but here the symptom is in the sphere of the content of thought rather than in the sensorium. The hallucination is more apt to represent a relatively acute process and the delusion a relatively chronic one. This is not absolutely so but in the case of the fixed and systematized delusion the patient has gradually built up a delusional world in which he can live in greater comfort than in the world of reality, a world in which his wishes come true, usually in a highly disguised, symbolic form. Delusions are usually highly disguised wish formations, substitution products, compromise formations. They may be defense reactions, avoidances, compensations, projections. They differ in the obviousness of their meaning to the extent the ego has deteriorated. In highly endowed personalities the disguise has to be very great that they may not offend the self-regarding instinct. In terminal states where the personality is greatly dilapidated they may stand very frankly for what they are with relatively little attempt at disguise. Archaic features which come from the very deepest layers of the unconscious testify to the malignancy of the reaction.

Hyper-quantivalent Ideas.—In speaking of ideas we use the term *quantivalence* to indicate the relative value which the idea has in the consciousness of the patient. Under ordinary circumstances when the mind is functioning healthily the quantivalence of ideas is normal, but it not infrequently happens that owing to pathological processes or abnormal environment certain ideas attain a degree of importance altogether unwarranted. Under such circumstances we speak of the ideas as being *hyper-quantivalent*. This condition is characteristically seen in morbid suspicions, ideas of a persecutory character, founded upon a very slight basis of fact, as in litigants or soldiers who have been

rebuked, and similar conditions occurring in paranoid states. These conditions may arise upon a comparatively normal basis in persons who are subjected to abnormal environmental conditions, particularly conditions which require living in comparative solitude or in close association with a few people to the exclusion of all others. These outward conditions are often seen in prisons and in secluded army posts.

In order that the mind may continue functioning in a normal manner it is necessary, among other things, that its contact with an environment of which other minds form a part should be continuous and of a sufficiently varied character to keep the process of idea association active and from getting into grooves. Under normal circumstances a slighting remark made to an individual is perhaps received by a retort in the same vein and the normal rush of ideas which an active life necessitates soon drowns out or submerges this particular idea, so that it has not the opportunity to constantly recur to the discomfort of the individual. It assumes its proper relation to the idea content of consciousness, the outward facts of which it is the inner representation, are seen entirely in their proper perspective. There has been no distortion of the normal quantivalence of the idea. Under abnormal environmental conditions, in which the patient leads a desultory mental life, where each day is much like the preceding and there is little variety of idea association necessitated by daily duties, there is nothing to prevent such an idea from recurring repeatedly to the individual, and because of this recurrence, and because it occupies so frequently the inner consciousness, the outward events to which it corresponds are seen in a distorted perspective. The idea has assumed a position in consciousness totally unwarranted by its real importance. It has become hyper-quantivalent.

Under such conditions the soldier who has been reprimanded broods over his disgrace until what was in reality a small affair has grown by constant nursing into a matter of tremendous importance: the veteran who has been denied a pension, the litigant who has lost a law suit, have been greatly wronged and cry aloud for justice. The narrow-minded malcontents who see life from a distorted and intensely personal viewpoint are the favorable subjects for the development of hyper-quantivalent ideas.

Fixed Ideas.—The term *fixed idea* is usually applied to these conditions and as a term designates them very well. The fixed

idea must be hyper-quantivalent. If a distinction were to be made it might be made on the basis of the content of the idea. Thus hyper-quantivalence is usually spoken of when the idea has its origin in the allopsychic consciousness. The litigant pursuing case after case to obtain his rights, or the discharged employe making repeated appeals for investigation are examples. The term fixed idea, on the other hand, is used more often for conditions arising in the somatopsychic or autopsychic field of consciousness. Thus the rather timid young man who feels his pulse and discovers that it is too rapid and perhaps somewhat irregular acquires as a result a fixed idea that he has organic disease of the heart. The woman whose husband has recently died and who is harassed by the belief that he might have lived had she given him a certain medicine has a fixed idea.

In both of these conditions, however, the patient feels the idea to be the outgrowth or reaction of his normal self and not in any way abnormal or an obtrusion from without as in the cases to follow.

Obsessions.—By obsessions we mean ideas, emotions, impulses, which occupy consciousness persistently and irrespective of the desires of the subject, often intruding themselves at inopportune times and occupying the field of consciousness to the exclusion of other ideas. They are sometimes spoken of as besetments, as they come unbidden and refuse to go at the will of the subject. They exist with clear consciousness and are often fully comprehended by the patient at their true value.

In the mild forms they are quite common and occur not infrequently in normal persons, usually as a result of fatigue. We are all familiar with the phenomena of the constant recurrence to the mind of a tune that was heard the night before at the opera; it invades consciousness to the extent of actually interfering with the transactions of the usual business of the day. Then there is the somewhat more aggravated case of the person who goes to bed but is worried for fear he may not have turned the gas-cock quite shut; he tries to banish the idea, turns over to go to sleep but it will not go and finally in sheer desperation he gets up, and, satisfying himself that the gas is actually turned off, returns to bed and goes to sleep.

The commonest and best known of the obsessions are the so-called *phobias* or fears. These fears are usually very specific,

referring to some special class of objects or set of conditions and receive names accordingly. Thus we have *misophobia* (fear of dirt); *metallophobia* (fear of metal, such as door knobs, money, etc.); *agoraphobia* (fear of wide or open spaces); *claustrophobia* (fear of narrow or closed spaces); *pyrophobia* (fear of fire); and so on indefinitely. Patients suffering from these obsessions are often completely dominated by them under conditions that call them into existence. The patient with agoraphobia crosses the street in fear and trembling, or perhaps cannot summon sufficient courage to cross it at all unless some one is with him, while on the contrary the claustrophobiac cannot endure a small or closed room, but must have the doors open, or if in a crowded hall is suddenly seized with fear and forced to make a hasty exit.

Of not infrequent occurrence also are the obsessions of doubt. These *doubts* may arise about anything, even the simplest acts of everyday life. A patient upon retiring may be seized with a doubt as to whether he turned the gas off or locked the door in the main hall, and is forced to get up and go and see, only to be seized again by the same doubt when he returns to bed; another, having written several letters, is forced to open all of them to make sure that the right ones are in each envelope. Still others have doubts about religious or metaphysical matters. So we have doubters who question the problem of a future life or the existence of things as they appear to the senses, etc.

If the actions which the obsessions tend to imitate are resisted the tendency becomes more and more imperative until yielding is forced and finally these patients, although fully understanding their condition and the abnormality of their ideas, may pass their lives in a continual round of actions made necessary by their obsessions.

Because of this element in the obsessed state that impels to action these conditions are often spoken of as *imperative ideas* or *imperative concepts.*

Autochthonous Ideas.—These ideas come into the patient's mind like foreign bodies, as it were, apparently not as a result of the usual methods of association. The patient feels that he has strange thoughts, thoughts that are not his thoughts and usually interprets their occurrence as being due to outside, usually malevolent, influences. The thoughts are forced on him by hypnotism, thought transference, by his enemies. Bad thoughts are thus

placed in his mind and often he is forced to act as a result of them although he does not want to and proclaims that it is all against his will.

Interpretation.—The symptoms in this group other than delusions, already discussed, all have a common element. Ideas are present in the mind that are not adequately accounted for by the situation. The ideas are cover phenomena. The force which compels their presence lies in the unconscious for which the ideas stand as symbols. They represent therefore the repressed material attempting to gain expression, they are symbolic. A fear of contamination is a fear of repressed and inacceptable desires: a fear of the number five may represent symbolically the five fingers of the hand which has been used in masturbation; a constant oversolicitude for some member of the family may disguise the repressed wish for his death: an apprehension of some illness may imply a recognition that it is deserved, etc.

Disorders of the Train of Thought.

Flight of Ideas.—In the normal process of thinking our thoughts are directed consistently to a well-defined end—the *goal idea*—and all other ideas fall into a subordinate position until this is attained. The course of the train of thoughts is held true by a guiding idea[6] (Obervorstellung).

In flight of ideas the patient either has no guiding idea or else at once loses it so that there is no consistent effort directed towards attaining the goal idea, and the thought therefore wanders here and there under the influence of chance associations. As a result the train of thought instead of progressing changes direction frequently, returns upon itself, and never reaches any logical end. The various ideas are not, however, incoherent—they do not fail to be connected one with another, although it may be quite impossible at times to see just what that connection is. If the associations are external, that is, originate in the surroundings, it is usually quite possible to place them; when, however, they are internal, that is, originate in the patient's mind, it may be quite impossible to conceive what they may be. An example will illustrate these various conditions:

"Do you know I was kidnapped to be sent here twice. I saw a mock funeral of me before I left home. This was done because I am a great

[6] Liepmann, H.: Über Ideenflucht, 1904.

inventor. The pope of Rome is the greatest human being in the universe. He is the head of the Catholic Church. My head (association of the word head in two different meanings) is good and sound, and I am certainly not insane. Do you hear the ticking of the clock? (External association.) It says, 'call the little heifer, the heifer is sick.' Did you ever see the gloves veterinary surgeons use when they doctor sick cows? (Internal association.) How would you like to be a veterinary surgeon? Say! what are you keeping me here for anyhow? I want to go home. (Here he was asked how he slept at night.) I have slept excellently; that is because I am of such a strong constitution. The constitution of the United States (association as above with the word head—probably the association is in large part at least a sound or—as it is called—a *clang association*) was signed by Thomas Jefferson. He was just a man, but he was not the inventor I am."

While there are many places in the example where the connecting link is missing—probably because it was an association formed entirely within the patient's mind—still the connection can be made out in a sufficient number of instances to establish the characteristics of the train of thought. One of the principal characteristics of this type of the train of thought is its great liability to change of direction by external association, as for example, the ticking of the clock in the above stenogram. This quality is known as *distractibility*. Any sensory impression is liable to be the starting point of idea-association, so that these patients' train of thought may be turned at will, almost, by such devices as shaking a bunch of keys before them, saying some word loudly, showing them a newspaper, or in other words, momentarily distracting their attention.

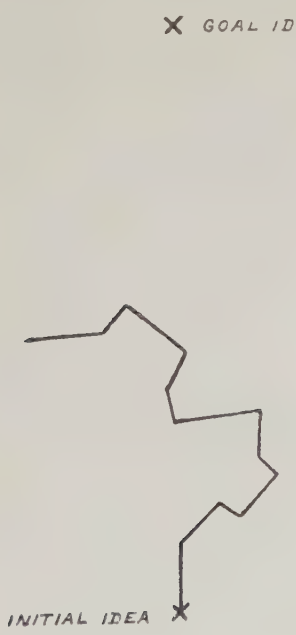


Fig. 4. Flight of ideas.

This condition of flight of ideas outwardly appears to be an expression of an increased rapidity of the flow of idea-association. However, this is not so, as an example will illustrate. The low *C* tuning-

fork used in testing hearing vibrates 128 times per second. If the amplitude of vibration which, although it is readily appreciable, is only a small fraction of an inch, be multiplied by 128 the resulting distance would be but a few inches at most. Let the fork be moved this distance in one second's time and the motion will be seen to be not fast by any means but slow. So in flight of ideas, if the rapidity of movement in a given direction by idea-association be tested, the release of ideas will be found to be slow. Like the tuning-fork, however, there occurs a rapid change of direction.

Tests of reaction time in this condition show that it is abnormally slow and this can be readily elicited by giving the patient a word such as cat, fur, glass, or similar simple word, and asking him to write down as rapidly as he can either all words he can think of rhyming with the key-word or all words that come to his mind in association with it. The slowness with which these tests are executed and the meagerness of the result will be in marked contrast to the apparent wealth of ideas and facility of their association and release.

Circumstantiality.—Circumstantiality, although sometimes superficially resembling flight of ideas, is quite different from it in its completely developed form. Although there is a frequent change of direction of the train of thought the goal idea is maintained and ultimately reached, and although there are numerous digressions as each circumstance in the narrative is elaborated and explained the original pathway is returned to and the general direction maintained. Thus a patient in telling about a cane in her possession upon which a ribbon is tied for ornament must tell how she came to have the idea of decorating the cane, who else in the neighborhood had such a cane decorated, what they had said to her and she to them about it, how she had taken the ribbon off and now had put it in two boxes in the house, how the ribbons had become faded, where she got the boxes, who gave them to her, and what their color was. All these details must be entered into before she can proceed with the thread of her narrative.

This condition is often found in a moderately developed form and has no special significance other than showing a lack of appreciation of the relative values of ideas. In the senile, where there is some mental impairment, the goal idea may be quite lost sight of in the mass of detail and the resemblance to flight is

then much more marked, still there is a more marked tendency to maintain the general direction of the train of thought.

Retardation.—Retardation, *difficulty of thinking,* as it is often called to distinguish it from psychomotor retardation, shortly to be described, is a decided slowness in the elaboration of ideas, the patient's stock of ideas do not seem to be available or accessible, ideas come slowly to the mind, there is a great difficulty in forming judgments, in coming to conclusions, in reaching decisions which is felt by the patient as an *inadequacy* in dealing with mental problems. This condition is expressed by the patient in great slowness of speech, a long interval elapsing before an answer is given to a question or something done as requested (*initial retardation*), and when the question is answered or the act done it is done very slowly and deliberately (*executive retardation*).

If such a patient be asked to count from one to twenty, beginning at a given signal and counting as fast as possible, it may be several seconds before he starts, and while a normal person should do this in two or three seconds, he may take often twenty, thirty, or even never finish at all.

Paralysis of Thought.—A complete absence of all internally initiated conscious processes. Impressions from without are not assimilated, form no associations, leave no traces. Mental life is in abeyance or abolished.

Interpretation.—Flight of ideas is the characteristic symptom of extraversion, as distinguished from introversion and regression. The patient instead of regressing attempts to, so to speak, run away from his conflict, his inacceptable desires, and he runs in the direction of reality. He occupies himself so constantly with the aspects of his environment so that he may ward off any approach to that aspect of his personality that he feels to be his weak point. It is essentially a means of defense against any possible reanimation of his inacceptable wishes.

In *retardation* and *paralysis of thought* the defense fails.

Disorders of (Volition) Action.

Decreased Psychomotor Activity.—This symptom corresponds in the motor sphere to difficulty of thinking in the psychic sphere. Whereas in difficulty of thinking we might say that there was a slowness in the liberation of ideas in psychomotor retardation, we can say there is a slowness in the liberation of voluntary

motor responses. The patient's movements are slow and deliberate, and we find here the same distinction of initial and executive retardation. This is a prominent symptom of depressive melancholia.

Increased Psychomotor Activity.—This is just the opposite of the above condition, and is due to an abnormally facile release of voluntary motor responses. It manifests itself in great restlessness, constant activity, even to the point of violence and destructiveness, and, like flight of ideas, the various acts are not consistently directed to a definite goal but to this and that end under the influence of chance associations. This is a prominent symptom of manic excitement.

Impulsion.—Impulsions or impulses are tendencies to act which are more or less uncontrollable, often absolutely so. The act may be of any kind and in this class belong the so-called *manias,* such as *kleptomania* (a morbid impulse to steal), *pyromania* (a morbid impulse to set things on fire), *dipsomania* (an impulse to drink), etc. These impulses appear without cause, the patient is restless until they are carried out, and their accomplishment is accompanied by a feeling of relief.

Compulsion.—Closely allied to the impulses are the so-called *compulsions.* The compulsions, like the obsessions, already described, are felt by the patient to be pathological, to be forced upon him, as it were. The impulse of the dipsomaniac, like the fixed idea, is conceived by the patient as originating within and being a part of him, a natural development of his character, perhaps, while the compulsion is often directed to the doing of some act distinctly abhorrent to the patient, such for instance, as murder, and he may take elaborate precautions to protect others or even have himself locked up to insure against its possibility.

If these compulsions are resisted or interfered with they give rise to certain symptoms which in marked cases constitute a veritable crisis. The patient feels weak, trembles, becomes dizzy, perspires, and finally yields, to find that at once all these symptoms disappear.

Stereotypy.—In stereotypy the voluntary impulse once set in motion tends to continue or repeat itself in the same way indefinitely, thus we have three forms of stereotypy, viz., stereotypy of *attitude,* of *movement,* and of *speech.*

In stereotypy of *attitude* the patient tends to maintain a par-

ticular, usually peculiar, position, such as standing in the corner, one arm raised, lying on the bed with the head hanging over the side. The muscles are usually tense and the patient resists attempts to alter his position.

Stereotypy of *movement* manifests itself in the continuous repetition of some movement, usually meaningless, such as swaying back and forth, nodding, wrinkling the forehead or the like. When the word stereotypy is used without qualification this variety is referred to. When these peculiarities are constant and characteristic of the patient, particularly if they occur in connection with his ordinary conduct, such as peculiarities of walking, eating at table, or in speaking, they are usually spoken of as *mannerisms*.

Stereotypy of *speech* shows itself in the constant repetition of the same, usually senseless, phrases, and is more commonly known as *verbigeration*.

The persistence of a motor impulse, whether in action, speech or writing, and commonly expressing itself by the iteration and reiteration of the same word or phrase, generally in an attempt to answer a question, is called *perseveration*. It may not be at all senseless, but simply show the tendency of a motor impulse once generated to hold the field, as in the following letter written to me by a young epileptic.

"May 21st, 1907. Supt. Wm. A. White I would like to have a talk with you about matters my papa advise me to do. How can I get to see you? will you come to see me or can I come to see you? I would like very much to see you Supt. Wm. A. White I am well but I want to see you so I can have a talk with you about matters that my papa advise me to do I am feeling all right now than I did some years ago but I would like to see you and have a talk with you about matters that my Papa advise me to do and I would be very thankful to you Supt. Wm. A. White if I could get to see you please do it for me so I can have a Talk with you about matters my papa advised me to do."

Negativism.[7]—Negativism is a peculiar condition which is manifested by the patient's not doing what is expected of him (passive negativism) or doing the opposite of what he is requested to do (active negativism). Every attempt to get the patient to do anything results in failure with perhaps certain signs

[7] Bleuler: The Theory of Schizophrenic Negativism (trans. by White). Nerv. and Ment. Dis. Monograph Series, No. 11.

of irritation or the release of a motor impulse the exact opposite of that required for the performance of the act.

Patients exhibiting this symptom not only do the opposite of what is requested of them but exhibit negativistic tendencies toward the promptings of normal desires. They do not yield to the inclination to empty the bladder or rectum, so that these organs often become overloaded with disastrous results. They often also permit saliva to accumulate in large quantities in the mouth, even until it has undergone putrefactive changes.

Suggestibility.—Suggestibility may be said to be the exact opposite of negativism. The patient's reactions are determined by impressions or suggestions derived from others. It is manifested in various ways. In extreme cases the patient resembles a lay figure; the limbs can be placed in any position and are there retained indefinitely. This condition is designated as *catalepsy*, or *flexibilitas cerea* (waxy flexibility). Often suggestibility is manifested by the patient's repeating words or phrases said in his presence—*echolalia*—or actions done before him, such as taking out the watch, putting the hands to the face—*echopraxia*. This method of reaction in which personal initiative seems to be absolutely in abeyance is often spoken of as automatic—the symptom is known as *automatism*. When the automatic responses are to commands then the term *command automatism* is used.

Stupor.—Stupor is a condition in which there is usually a profound disturbance of consciousness, but the feature which gives it its distinctive outward character is psychomotor inhibition—voluntary motion is to a greater or less extent in abeyance. The mental state in the different varieties of stupor differs greatly from profound clouding of consciousness to almost clear consciousness, as in the catatonic stupor of dementia precox. To this latter condition, in which the patient, although quite immobile, is still fully alive to what is going on about him, the term *pseudo-stupor* has been given.

Interpretation.—Disorders in the field of action are similar from the point of view of interpretation to disorders in the sphere of thought already considered. Acts or failures to act, as the case may be, when not explicable by the situation are traceable to unconscious motives. Just as *flight of ideas* is accompanied as a rule by *increased activity* so *retardation* of the thought processes is accompanied by *decreased activity*. *Mannerisms, gestures,*

postures are evidences of underlying unconscious motives. Many of the rhythmic activities of defectives are substitutes for masturbation such as rubbings, biting the hand, swaying, etc. Many of the *symptomatic acts* are for purposes of warding off phantasied aggressions which are unconsciously desired but inacceptable to the ego. Others are calculated to bring suffering to some hated person as the apparently accidental breaking of valuable things. Sometimes these accidents are directed against the person himself as self-punishment for desires felt as wicked. Then again postures are maintained, particularly in catatonic states that represent a passive attitude which invites assault, represents an attitude of submission, or on the other hand rigidity is assumed which is calculated to shut out all contacts from without. In extreme negativism and stupor the patient is quite characteristically given over to a riot of indulgence in phantasying with respect to the content of which he is often quite inaccessible when he recovers but the nature of which can be inferred from his occasional utterances and movements.

Suicide is evidence of profound regression. It may be an act calculated to destroy some aspect of the self felt as profoundly inacceptable. Homicide is often a symbolic act in which the person killed stands as a surrogate for some one hated or it may be finally directed against the actually hated person.

Disorders of (Emotion) Feeling.

Exaltation.—Exaltation is a condition of morbid emotional elation, a feeling of happiness and well-being not warranted by the condition of the patient or his surroundings. It is one of the most prominent symptoms of mania, and is here combined with increased psychomotor activity. With exaltation is often associated a marked degree of irritability with sometimes outbursts of angry states.

Depression.—Depression is the opposite of exaltation. It is a morbid feeling of unhappiness not warranted by the condition of the patient or his surroundings. It is one of the most prominent symptoms of melancholia, and in that variety known as affective or involution melancholia often gives rise to a state of *anxiety* with marked precordial distress, difficulty of breathing, and some motor agitation.

Emotional Deterioration.—A condition of poverty of the emotions manifesting itself by indifference and occurring in conditions of mental deterioration, particularly seen in dementia precox, paresis and senility.

Morbid Anger.—This symptom, except as due to transient conditions of irritability, as in mania, is seen most often in the defective. It is often a marked feature in idiots and imbeciles, constituting them very dangerous patients, but is also seen among the higher defectives, the morally deficient, and is here often combined with great cruelty.

Interpretation.—Emotion like energy cannot be destroyed. When the reaction is excessive and not explicable by the situation the source must be looked for elsewhere. If the reaction is pathological it is from the unconscious. If the emotion is inadequate then the energy must be looked for elsewhere, if pathological, in the phantasy realm.

Disorders of Memory

Amnesia.—Amnesia is loss of memory. The loss may be *circumscribed*—only for certain things or extending over a very definite space of time—or it may be more *general*. Loss of memory extending over definite periods of time is usually the result of illness or injury. In such cases the amnesia usually has a fairly definite beginning with the delirium of the illness or the occurrence of the injury and usually also a fairly definite ending. It is known as *retrograde amnesia*. If, on the contrary, the amnesia is continuous, the patient seems to be no longer able to store up memories, as is so typically seen in the senile, the amnesia is *anterograde amnesia*.

Hypermnesia.—An exaggerated degree of retentiveness, often seen in the remarkable memory for details in some cases of chronic delusional psychoses, who seem to remember every detail in their lives as bearing on their delusional system.

Paramnesia.—This is a disorder of memory in which events are remembered which never happened. An example of this was afforded by a patient who stopped me while I was going through the ward and told me that, while she was dining in another ward, I had entered the dining room and informed her that any time her satchel was ready she could go. As a matter of fact, I had not even seen the patient upon the occasion she referred to.

When these false memories are projected into the past and associated with delusions, often of an explanatory nature, as occurs in paranoia, the symptom is known as *retrospective falsification of memory.*

Interpretation.—Forgetting is not considered by the new psychology to be a purely negative and passive process, at least the forgetting which has psychopathological significance. Such forgetting or amnesia is facultative, that is, it is a matter of choice. Things are forgotten because the subject does not want to remember them. The motive for the forgetting is frequently largely unconscious though there may be a considerable element of conscious effort in that direction. People prefer to forget disagreeable, gruesome and terrifying sights. The painful sights of a railway wreck are forgotten, often following a period of unconsciousness. The nurse who gives a fatal dose of medicine passes into a stupor from which she awakes with no memory of the painful event.

Similarly with the paramnesias. The explanation here is often in wishful thinking. The condemned prisoner has been promised a pardon, he remembers the circumstances. Memory as well as perception and ideation must contribute to making the world possible to live in.

Disorders of Attention.

Aprosexia.—This is the condition of inability to fix the attention for any length of time in one direction and is seen typically in mania. Here the attention wanders rapidly from one thing to another and as a result perception is inadequate. The different elements of the environment are not attended to sufficiently to insure their correct perception. This insufficiency of perception gives rise to the maniac's defects of orientation most frequently seen with respect to persons, some slight resemblance being hit upon and the person mistaken for someone else, a former acquaintance or associate.

Enfeeblement of the power of voluntary attention is one of the most characteristic of the signs of deterioration and is a prominent symptom in the various deterioration psychoses, for example, in dementia precox.

Hyperprosexia.—In this condition the attention of the patient is completely absorbed by some thoughts, usually by his

delusions. This complete absorption also gives rise to disorders of perception, as the environment is not attended to and often not perceived at all. The condition may give rise to actual delusions. A young woman, who was suffering from the most profound melancholia with painful delusions, was so absorbed in these that she did not perceive the tray of food that was brought to her and subsequently when it was brought to her notice thought some mysterious power must be responsible for its presence.

Disorders of Personality.

To understand these disorders, we must understand what constitutes personality. The individual, besides receiving certain information from the environment and forming certain ideas, has beyond this a consciousness of self, a feeling that all his perceptions and ideas are experiences of a single self, a self that maintains its own individual identity throughout, and which the individual calls "I." This problem of self-consciousness, although the riddle of psychology, presents certain features useful in elucidating the problem in hand.

Our consciousness, as we know it, is subject to many interruptions, many lapses, so that in an ordinary lifetime hiatuses appear in its course, yet the notion of personal identity is not thereby destroyed. For example, every profound sleep destroys the continuity of consciousness. We may conceive, however, that underlying all these manifestations, such as disappear from view in the profundity of sleep, there are certain permanent features which form the foundation, the continuum of consciousness upon which the transitory features as we see them are erected as epiphenomena. The most important element in this fundamental continuum is the *cœnesthesis*—made up of what we must conceive as a continuous flow of sensations from all the organs of the body to the mind. This flow of sensations is constant throughout life, and in the absence of disease varies little either as to quality or intensity. It is the continuous, ever present element of our consciousness. The other elements, of which we have directly a better knowledge, made up for the most part of perceptions of the outer world of reality, vary much more in correspondence to many factors, particularly as to the nature of the environment, and the characteristics of the perceiving mind as the result of past

experiences. It is these two elements of consciousness which make up the personality.

The concept of the individual as we hold it is the result of a long period of evolution and development. The individual and the environment are really two elements of a dynamic relation, of a constant interplay of forces, in which their relative values are in a constant state of flux;[7a] they have only slowly, over a long period of time, been differentiated one from the other. For the primitive and the child the two are still confounded, and for the adult regression tends to wipe out the distinctions. It is for this reason that in the psychoses we so frequently see that the environment has acquired a new and increased significance; it is filled with all sorts of unknown and usually sinister influences which have the profoundest personal meanings for the patient and which come to expression in the most concrete ways—hallucinations. (See p. 71.)

Transformation of the Personality.—This phenomenon is seen in the paranoid conditions typically, the gradual growth of a delusional system accompanied and probably to some extent dependent upon disorders in the realm of the organic sensations. The paranoiac, with his profound disturbance of allopsychic consciousness, sees the outer world of reality twisted, deformed, as though he were reviewing it through an astigmatic medium. All the facts of his life, his knowledge of the world are distorted to conform to the deformity of the medium through which he views them. Not only are these elements of his personality seriously disordered, but its very foundation—the cœnesthesis—is also seriously disturbed, as seen particularly in the first stage of the disease. All of the elements that go to make up the patient's personality being so completely disordered, the expressions of that personality are similarly disordered and we have the picture of the third stage, the final result of the disease process in its natural unfolding—transformation of the personality.

Depersonalization.—A lesser degree of the same sort of process results in a disorganization, a breaking up of the personality. This is seen in many conditions and is associated with a *feeling of unreality*, and occurs as a part of the *delirium of negation*. The patients proclaim that they are changed, they are

[7a] White: Individuality and Introversion. The Psychoanalytic Review, Vol. iv, No. 1, January, 1916.

not themselves. One of my patients would look in the glass and stare in wonder at her reflection, saying her eyes were not hers, they were cat's eyes. Another patient affirmed she had no head, no arms, no body, no mind, nothing. The feeling of personal identity in these cases has become disrupted, the personality disorganized.

Multiple Personality.—In this condition the patient passes through stages in each of which the personality is different. The usual cases are those in which a secondary personality grows up in the individual and at times overwhelms the normal personality and occupies the stage to its exclusion. These are the cases of so-called *double-consciousness*. The two, or sometimes more, personalities are usually separated from each other by complete amnesia, so that one does not know of the existence of the other.

Interpretation.—The disorders of the personality here described are dependent upon the intrapsychic conflict. If the two factors in the conflict are in complete disharmony a splitting of the personality, schizophrenia, may take place. All sorts of compromise formations, however, may take place short of this dependent upon the relative strength of the opposing forces.

Ganser's Symptom.

Ganser's symptom or, as it has been called, *the symptom of approximate answers*[8] (Danebenreden) is sufficiently frequent to deserve notice. Its designation as the symptom of approximate answers serves very well to describe it. An illustration will make it quite clear. A patient gives the following results in calculation tests: $7 \times 6 = 41$, $4 \times 8 = 36$, $6 \times 7 = 43$.

Another patient gives the following replies to questions:

Ques. What year is this (1907)? *Ans.* 1907, I think.

Ques. What is the month (Feb.)? *Ans.* It might be January.

Ques. What is the day of the week (Wednesday)? *Ans.* Tuesday.

This patient gave the following results to calculation tests: $17 + 16 = 21$, $9 + 7 = 16$, $3 \times 7 = 20$—when told he was wrong said 22, $19 - 13 = 8$, ain't it?

This symptom has been supposed to be rather characteristic of

[8] Ruggles, A. H.: Observations on Ganser's Symptom. Am. Jour. Insanity, Oct., 1905.

hysteria but it has been found in many conditions. My own experience leads me to believe that it is rather characteristic of states of psychopathic inferiority.

The "Complex."[9]

The mind cannot be conceived of as consisting of or containing ideas which are deposited here and there, helter skelter, without order, as the scraps of paper that are thrown carelessly into the waste basket. Quite the contrary. Ideas are grouped about central experiences, constellated as we say, built into coherent and harmonious structures not unlike the way in which bricks and stones are brought together to form buildings and these buildings are again grouped to form the larger whole—the city. The significant fact in this connection is that the cement that holds the bricks and stones together, the binding substance, is feeling.

This orderly arrangement of ideas upon a background of feeling which serves to unite them is what gives character, individuality to the personality. The creating of the proper feeling-tone about things and events is one of the main functions of education.

Now it so happens that in certain types of individuals a constellation of ideas, grouped about a central event that conditions a highly painful emotional state, is crowded out of clear consciousness—repressed—into the region of the unconscious and so tends to lead an existence which is relatively independent and in so doing gives origin to various symptoms. Such a constellation has been known for many years, especially in France and in this country as a "dissociated state" but more lately as a "complex."

The complex, crowded out of relation with the personal consciousness, seeks for expression and because it is not synthetized with the rest of consciousness, because the individual is not aware of its existence, its expression cannot be controlled and guided into the usual channels and so creates the symptoms of the psychoneurosis or psychosis.

The extreme difficulty in locating and uncovering the complex is due to the symbolic forms in which it usually manifests itself. The painful memories of disagreeable experiences, unethical, unconventional, and otherwise impossible and hateful wishes while

[9] White: Mechanisms of Character Formation. New York, The Macmillan Co.

crowded out of mind by what FREUD has so aptly termed the "censorship of consciousness" nevertheless struggle to find expression. The complex cries for recognition, the censorship will have none of it—the fight is on, the conflict wages, until finally a sort of compromise is reached by permitting the complex to come into clear consciousness but only on pain of not disclosing its true self, under the cloak of a complete disguise.

For example FREUD's case of Elisabeth.[10] She was engaged in nursing her sick father who afterwards died. One evening, spent away from home at the solicitation of the family, she met a young man of whom she was very fond and he accompanied her back home. On the walk home she quite gave herself up to the happiness of the occasion and walked along oblivious of her duties. On reaching home she found her father much worse and bitterly reproached herself for forgetting him in her own pleasure. She immediately repressed this disagreeable thought from her consciousness. Now she had, each morning, to change the dressings on her father's swollen leg. To do this she took his leg upon her right thigh. The suppressed complex seized upon the feeling of weight and pain of her father's leg upon her thigh as a handy and efficient means of expression and so the repressed erotic wish comes into consciousness under the disguise of a painful area of the right thigh corresponding in extent and location to the place upon which she rested her father's leg.

This is the sort of mechanism that accounts for many unusual and strange experiences that otherwise appear to be without reason. Unexplained forgetting, slips of the tongue, certain mental attitudes, moods, and even the dominant traits of character are due to the activity of submerged complexes while the phenomena of dreams are explained in the same way.

DREAMS.

As already described the complex often expresses itself symbolically (*symbolism*), often by the transfer of an emotion from a painful event to a less painful or indifferent event (*displacement*), often, as in hysteria, by the conversion of the conflict into a physical symptom (*conversion*).

The importance of dreams is due to the fact that the mechanisms that produce them are the same as the mechanisms of the

[10] Freud: Selected Papers on Hysteria and Other Psychoneuroses. Jour. of Nerv. and Ment. Dis. Monograph Series, No. 4.

symptoms. Both express themselves by symbols in order to disguise the painful tendencies which are seeking expression. The object of displacement is the same. For example, a person who in his youth learned to hate someone very much who happened to have red hair later dislikes all people with red hair. Red hair thus becomes the symbol of the hated person and also the hate is projected upon the hair (displacement) rather than the person. So the individual can indulge his hate without having the disagreeable experience of having to recall the forgotten experiences.

Dormant complexes produce many of the symptoms which are seen in the psychoses. When the complex has to find expression through the medium of a mind seriously disintegrated by deterioration processes the results are extremely difficult to unravel. The method of approach at present most in vogue is by association tests—psychoanalysis. (See Chapter VI.)

Dreams for FREUD are sleep conserving in their function. The suppressed complexes during sleep seize upon the opportunity to slip out from their enforced retirement. Should they succeed sleep would be disturbed—impossible. The censorship, therefore, compels them to assume strange forms so that they may not be recognized for what they really are and so strike terror to the heart of the sleeper and cause him to awaken. If for any reason the censorship has been lulled into fancied security, rendered dormant and inactive by sleep, and the appearance of the undisguised complexes in clear consciousness seems imminent then the phenomena of nightmare result and to prevent the dreaded dénouement the sleeper awakes and thus arouses the censorship to full activity and power to keep them down.

The study of dreams[11] has become of great importance in psychoanalysis. Since no mental state can be fortuitous, since the content of consciousness at any one time must be causally dependent upon what has preceded, a study of the dream must therefore throw light upon the mental make-up of the dreamer. Dreams have been shown to be closely related to delusions and to psychoneurotic symptoms and their analysis is very important for the unravelling of those symptoms.

[11] White: Mechanisms of Character Formation. New York, The Macmillan Co., 1916.

Jones: The Relationship Between Dreams and Psychoneurotic Symptoms. Am. Jour. Insanity, July, 1911.

Jelliffe: Technique of Psychoanalysis, No. 26 of this Series.

Mental Mechanisms.

In the past it has been the *content* of thought that has received almost exclusive attention whereas the *process* of thinking, or as I prefer to say the *mental mechanisms* have had slight heed. Mental mechanisms are now recognized as of equal and sometimes superior importance to content in the understanding of a given situation, particularly situations brought about by regression and utilizing more primitive *ways* of thinking.

As soon as we become interested in mechanisms as well as content we will appreciate that the moving force back of these mechanisms is emotion. In fact the word emotion means to move out (*e,* out and *moveo,* move). In other words the driving force back of the mechanism is felt as emotion or affect. For the purposes of understanding the mental mechanisms that I shall briefly describe it is well to think of the psychic energy as if it were this emotion or affect that we feel and which may attach itself to or invest almost any content. This investiture of an object (idea) with feeling is technically known as *cathexis.*

The interpretation and meaning of the several mental mechanisms in the psychoses is analogous to that for the mechanisms that are brought into operation as the result of physical illness. When an individual is infected the organism reacts by an effort at protecting him from the onslaughts of the invading organism. There is at once a struggle between this organism and the individual. The issue of this conflict from the point of view of the individual may be success, in which case there is a return to health, complete failure, in which case the individual dies, partial success, in which case the individual remains to some extent invalided, or there may be a definite compromise effected between the results of the illness and the needs of the individual—such a compromise, for example, as the hypertrophy of the heart muscle as the result of a valvular leakage.

In the same way we see in the mental sphere quite similar things happening and we designate them as phenomena of *defense* and of *compensation.* Under the influence of a severe mental traumatism or stress these mechanisms are switched into action, and, as in the case of somatic disease, they may succeed or fail, or a compromise may result. If success occurs recovery takes place. If failure occurs, and the failure is complete, the result is death. The typical

somatic death that is brought about as the result of mental disease is suicide. The typical mental death is dementia. If only a partial recovery occurs there is a permanent mental crippling—a chronic deterioration of the personality, and the individual perhaps has to be cared for in an institution for the rest of his life. The mechanisms of compensation here are also quite as clear as they are in somatic disease. The mechanism of projection, for example, is for the purpose of displacing certain painful things to the outside world, so that the individual, who is incompetent for any reason, is spared the realization of this incompetence and is able, through the mechanism of projection to blame some one else for his failures.

Identification.—Freud believes[12] that "identification is the original form of emotional tie with an object." The child at first is completely identified in its feelings with its mother and too with its entire environment. In fact its first months are largely taken up in the process of differentiating itself from the environment, in separating out all those qualities that belong to the ego, the "I" from all those that are "not I," in other words—the differentiating of subject from object. The "I" normally becomes more and more clearly differentiated but in the regressive psychoses there is a return to a vagueness of personal identity and an increased feeling of relationship with the environment. We often see in the psychoneuroses as well as in the psychoses a close repetition by a child of the character traits, the illnesses, even the neuroses and psychoses of a parent that can more readily be explained by the mechanism of identification than by heredity.

The general relationship between the individual, the ego, and the environment is expressed by two mechanisms.

Introjection.—By the process of introjection the qualities of the environment are felt as within the individual and forming part of him, as, for example, with the overfussy housewife who is made uncomfortable by the slightest displacement of the customary arrangements in her household, who is made distinctly uncomfortable by a picture that hangs crooked and has to straighten it to be at ease. As a result of this mechanism the individual, so to speak, draws the outer world within the circle of his interests

[12] Freud, S.: Group Psychology and the Analysis of the Ego. The International Psycho-analytical Library, No. 6, 1922.

and so reacts keenly to all the details of his environment. Introjection makes for a wider interest in the world of reality and broadens the horizon of the personality.

Projection.—By the mechanism of projection the individual expels from his ego his feelings, particularly those that are unpleasant, and then they feel as if they come to him, not from within, but from the outer object to which they have become attached. This is the mechanism of the paranoid type of reaction (see p. 139). Projection has the effect of contracting the personality by concentrating its interests within narrower channels, and so stabilizing it.

Introjection and projection are the exact opposites each of the other. This is a characteristic of emotional or affective expressions. They tend to occur in two sets of symptoms which are diametrically opposed. It is as if the affect swung first one way and then the opposite like a pendulum. Affective symptoms, therefore, tend to occur in pairs such as introjection and projection, love and hate, masochism and sadism, exhibitionism and scoptophilia. This quality of capacity for opposite types of expression is called *ambivalency.*

Displacement.—As I have already indicated affect may attach itself to various objects appropriate or inappropriate. When a man blames some one else or some thing for his own shortcomings as when a boy blames a teacher for not being able to learn, or the golfer blames his golf stick when he makes a poor shot, the affect has been displaced from where it rightly and properly belongs, in one case onto the teacher and in the other onto the golf club. This sort of displacement is an example of a *defense mechanism* whereby the individual is able to avoid or defend himself from the realization of his own shortcomings.

Displacement is one of the most important mechanisms of mental development and cultural progress. The small boy who loves to whittle later likes to build crude structures of wood which become more refined after his father has made him a present of a box of tools. He then goes to a manual training school, begins to study mathematics and to learn to draw and advances by degrees to college and to a course in architecture. This has all been possible because his affect, his interest, was not everlastingly fixed to whittling but could be progressively displaced to higher and higher aims—the process known as *sublimation.* When the displacement

is of the tender emotions and upon individuals it is termed *transference* and is the mechanism by which the child is able to advance in its personal and social development after the manner of the boy who progresses from whittling to architecture. The transference of the tender emotions to the physician is a mechanism of tremendous importance in the practice of medicine and particularly the pactice of psychotherapy. It gives the physician great power and authority over the patient which it is his duty to utilize for the patient's best interests and therefore like all authority carries with it a commensurate weight of responsibility.

Substitution.—In the discussion of displacement it was the affect upon which attention was focused as it was displaced from object to object. The mechanism of substitution shifts the point of view to the objects to which the affect is attached, as they are successively substituted for one another. The boy who was able to progressively displace his interest from whittling successively to toy structures, to manual training, to mathematics and finally to architecture also substituted each objective represented by the activities of each period to the next more advanced objective. Substitution and displacement are thus seen to be but two aspects of the same mechanism, which, when it results in unusual or grotesque objects of interest and contemplation is responsible for much of the *distortion* seen in dreams and in the psychoses.

It can be seen how the various objects or objectives that are successively invested with affect, because the quality of the affect is the same, may each represent or *symbolize* the other. The toy house that the boy built as a child well symbolizes the nature of his strivings which later expressed themselves in his choice of architecture as a profession.

A very special and important instance of substitution produces one of the characteristic symptoms of hysteria. In this psychoneurosis it is quite frequent that a portion of the patient's own body should be taken as the object of his affect and so come to stand in symbolic relation to those other objects which have been invested with the same quality of affect. This symptom is known as *conversion* which means that the mental symptom has been changed or converted into a physical symptom. A man, for example, who has committed a crime with his right hand—a forger—might develop an anaesthesia of that hand, so following

as nearly literally as he could the biblical injunction "if thy hand offend thee, cut it off."

Rationalization.—It has been said that "speech was given to man to disguise his thought." It might equally be said of reason that it was given to man to disguise his motives. Rationalization is the mechanism whereby a rational explanation or reason is brought forward for conduct which is not only not the true reason for that conduct, but more or less effectually disguises and covers up the real reason from the subject himself as well as, often, from others. We therefore are constantly thinking that we do things for reasons other than those that really activate us. The tendency is to think and to do as we wish and then find a good reason for so thinking and acting afterward. Probably no one is free from the distortions produced by this mechanism and it needs to be kept constantly in mind in examining patients. The examiner needs too to be on the lookout for distortions resulting from his own rationalizations.

PART II
CLINICAL

CHAPTER VIII.

Paranoia and Paranoid States.

Paranoia.

Historical.—The term paranoia was used by the ancient Greeks to designate a kind of thinking that was "beside itself"; it might be the present equivalent of a mind distraught, or distracted with grief or agony. It disappeared from use and did not reappear in psychiatry until the Middle Ages when it was synonymous with craziness in general. Heinroth in the early part of the nineteenth century used the term to include special types of acute confused thinking (delirium), a trend which has been followed by certain psychiatrists to the present day—as seen notably in Ziehen. Another trend has been to apply the term to a group of disturbances characterized by chronic delusional formation.[1] It was easy in the early days, before there was any adequate understanding of the individual as a complicated grouping of organs and functions which not only worked each after its own manner but all together as a wonderfully coördinated unitary affair, to take the next and more or less obvious step and formulate the concept of *"monomania"*, a state of mind characterized by delusion about some one particular thing, as if a person could be quite beside himself about some one thing and quite all right about everything else. This very simplistic concept, however, has disappeared except in the minds of the laity and of the courts and the concept paranoia has grown along the lines indicated in the following account.

Description of the Psychosis.

The basis upon which so-called "true paranoia" has been separated from other conditions is the absence of intellectual impairment. When a paranoid condition was associated with marked intellectual impairment the diagnosis has usually been dementia precox. Inasmuch as we have no well accepted criteria

1 Jelliffe: Study of Origin of Paranoia Concept. Jour. of Nerv. and Ment. Dis., 1913.

for determining the existence of dementia this distinction is now of little use. The woman whose case I have cited elsewhere, who expressed the idea that her husband was untrue to her, did not thereby show any signs of intellectual impairment or express an idea which inherently showed any evidences of intellectual impairment. When, however, she adduced as proof of this statement the fact that when she looked out upon the street in the morning following a snow storm of the night before she saw numerous foot prints of a woman who had been to the house during the night to meet her husband, and without any additional facts presents this argument in support of her previous statement, there is some justification in saying that her judgment in this specific instance is poor, and when it is found that all of her arguments in support of her idea are of a similarly flimsy and unwarranted character, there is warrant in saying that her judgment is impaired, which is tantamount to saying that her intellect is impaired. Although this patient talked reasonably about most things, was acute to perceive, and under ordinary circumstances showed no outward signs of mental disturbance or impairment, yet the conclusion that impairment actually existed cannot be excluded. The impairment, though, would seem to be due to what we have learned to call a "splitting of the personality" rather than to any permanent destruction of mental elements (due to organic changes in the brain of a degenerative nature) to which the term dementia could properly be applied.

The weakness of judgment that is called paranoiac is not one that appears to be equally diffused over the entire field of the mental operations. It seems to be more or less closely associated with a definite delusional system. We must not on that account come too speedily to the old conclusion that a person may be insane on one subject and sane on all others. It is true the reasoning termed paranoiac often seems clear on subjects not connected with the specific complexes, but we must not lose sight of the fact that the delusion itself does not constitute the mental disorder—it is only one of its outward and manifest expressions. In this respect MERCIER'S[2] comparison of a delusion to an island in the ocean is very apt. The island seems to occupy a position completely isolated, surrounded on all sides by water, but if the

[2] Mercier, Charles: Criminal Responsibility, 1905.

depths of the ocean be sounded it will be found that it is in reality but the summit of a mountain which reaches down into the depths of the sea to its very bottom and so establishes a connection by direct continuity with the mainland. So with a delusional system or idea, its isolation is only apparent, in reality it springs from the very foundations of the mental life. Paranoia, from this angle, might then be termed a *"circumscribed psychosis"* rather than a monomania in the sense of a disorder related to a single subject. The delusional elaborations really have their roots deep in the personality but at the surface the disturbance is concentrated in a comparatively circumscribed area.

In addition to the characteristic feature which will be termed paranoia, which has just been discussed, some observers would exclude all emotional disturbances other than could be directly attributed to the delusions present. WERNICKE[3] maintains this general position by setting forth that while the content of thought is disordered, the form of thought or the process of thinking is preserved.

This theory of the disease harks back to the "faculty concepts" of the old psychology. If the thesis of the continuity of mental processes that I have maintained in the early part of this work is true, then such a state of affairs could hardly be conceived of as possible. As a matter of fact, the thing that has happened is a displacement of the affect which gives this outward appearance to the disorder.

The symptoms of the early stages culminating in the systematized delusions of persecution are symptoms which lead up to and develop what is best described as the *paranoiac character*. This paranoiac character is a character the essential trait of which is a general feeling, mood, or as it is sometimes called affect-tone of suspicion. It is closely related to the ego complex of the individual. If the wave of consciousness is conceived of as occurring in a sea of feeling, of affects, then it can be understood how all of the perceptions of the outer world, received and bathed in this sea, must be affected by its nature. If the mood is one of suspicion, then all the experiences of life are contaminated, and the world at large is only interpreted as the perceptions of that

[3] Wernicke: Grundriss der Psychiatrie.

world are tinctured by the predominant mood. The internal mental state is projected upon the environment.

After all, it is the "feeling-mass" more than the intellectual processes that goes to make up character, and the paranoiac character is what it is because this feeling-mass has become perverted. PRATT[4] has well said: "For it is feeling alone that gives value to life. Sensation and ideation merely report on the facts. If man were only a cold intellect who saw and judged, one thing would be to him as valuable as another—in fact for him there would be no values in the universe but only truths. It is only because man has feelings, emotions, impulses, that anything in heaven or earth has value. Moreover, not only does the feeling background create values; it also is often that part of a man's mental make-up which for others has value. What we love in our friend is not his sensations, nor chiefly his ideas and his reasoning power; it is principally that combination of indefinable psychic qualities—impulses, desires, like and dislikes—which we call his disposition. So far, then, is the feeling-mass from being something which a man should hope in the course of evolution to get rid of, that as a fact, if he should get rid of it, no one would be able to find anything lovable in him, and he himself would be utterly unable either to love or even to value anything.

"In short, the feeling-mass is wider than the other departments of psychic life, and more closely identified with the self. A change in it means a change in personality. Sensations and ideas have a communicable and universal nature; this irrational residuum is peculiarly private and individual. It is the determinant of character—in one sense it *is* the character and the personality. From it the practical activity gets most of its energy and most of its guidance."

BIANCHI[5] would create the disorder on the basis of what he terms the primitive emotions—suspicion, ambition, love—which determine the three classic varieties: the persecutory, the ambitious or proud, and the erotic. He says on this point:

"In paranoia the fundamental emotions, which are also an expression of the altered kinesthesis, are emotions of a primitive

[4] Pratt, J. B.: The Place and Value of the Marginal Region in Psychic Life. The Psychological Review, Jan., 1906.

[5] Bianchi, L.: A Text-Book of Psychiatry. New York, William Wood & Co., 1906.

character, such as suspicion, vanity, pride and fear—fear of injury and destruction, desire of exaltation and of grandeur of one's own ego. Therein lies the reason of the egocentric attitude of the paranoic subject (SPECHT). These primitive emotive states, intrinsic to the personality and proportioned differently in different men, determine currents and orders of ideas and actions in the evolution of the personality, which succeed, in various ways, in protecting or expanding the personality in a rigorously logical fashion. When those emotive states exceed the normal measure in intensity and persistence, they exercise an absolute dominion over the consciousness, until, through their having once assumed government over the senses and the intellect, there is an alteration of the perception and the apperception processes that insure normal relations between the individual and his environment."

The Paranoia of Magnan, Krafft-Ebing, and Kraepelin.—The conception of paranoia has been dominated for many years by the descriptions of MAGNAN in France, and KRAFFT-EBING in Austria. MAGNAN'S[6] *délire chronique a évolution systématique* is a disease which usually occurs in young adults who quite often, if their history is carefully taken, have shown peculiarities during childhood, manifesting themselves in a certain taciturnity, moroseness, or disinclination to associate with other children as freely as is usual. The child may also have shown a tendency to make friends with older persons, stay at home and read and sew instead of play, and may have had a tendency to day-dreams and the building of air-castles. Very often, however, the history obtained will show none of these peculiarities.

For the purpose of description the disease may be divided into three stages, named in accordance with their most characteristic symptoms. *First,* the hypochondriacal stage or stage of subjective analysis. *Second,* the stage of persecution. *Third,* the stage of transformation of the personality.

In the first stage the symptoms already described, if present, become more marked, the patient becomes wrapped up in his own thoughts and uncommunicative, unusual feelings occur, headaches, dizziness, weakness, perhaps insomnia, with nervousness and restlessness, which he fails to understand, but constantly worries about—*hypochondriacal ideas.* This condition is asso-

[6] Magnan et Sérieux: Le Délire Chronique a Évolution Systématique.

ciated with marked *emotional depression,* which in some degree is probably always incident to beginning paranoia. He soon begins to notice that people act differently towards him, when he goes in a room someone gets up and goes out, people on the street spit when they pass him, his employer has failed to say "good-morning" to him lately, people who are standing about here and there are talking about him and speaking of his condition and making disparaging remarks. Everything that occurs about him is interpreted as having some relation to himself—*ideas of reference.* This condition continues, becomes more aggravated, the ideas are not corrected and the patient, by keeping by himself, fails to come into that normal touch with the environment which gives to acts and circumstances their proper perspective.

The hypochondriacal ideas and ideas of reference become more constant and pronounced, the patient fears he is losing his reason, his health is being destroyed, and all for what purpose? what is the explanation of these conditions? why do people act towards him as they do?

The second stage of the disease is ushered in by the *delusion of persecution,* which is the patient's answer to all these queries by finding, as he believes, that their explanation lies in the operation of some malign influence against him. About this time also *hallucinations of hearing appear.* Heretofore the patient may have thought persons standing apart were talking or whispering about him, or may have heard remarks made about him by persons who passed him on the street, but it is quite impossible to tell whether these were true hallucinations or merely falsely interpreted occurrences. Now, however, there is no longer any doubt; the patient hears actual voices which usually make disparaging remarks about him or even say grossly insulting and vulgar things to him.

The delusion of persecution, reinforced by the hallucinations of hearing, from now on occupies more and more the focus of consciousness. It becomes more and more definite, the malign influence is recognized as an organized attempt on the part of a secret society, perhaps the Free Masons, the Jesuits, the Mafia, the Catholic Church, headed by the Pope. The agents of the society are always near him and the many annoyances he suffers are the results of their machinations. They poison his food, inject noxious vapors into his room at night, send electric currents

through him when he goes to bed, bawl all sorts of insults in his ears and in innumerable ways annoy him and try to end his life. New sensations and experiences are explained by some new device invented to torture him—*delusions of explanation,* and various occurrences going on about him are similarly woven into the warp and woof of his delusional system.

The delusions are now almost constantly dwelt on to the exclusion of everything else, everything in life, every conscious experience, falls into some relation with the central thought, the delusions are fully systematized, they have reached out their influences like the tentacles of an octopus throughout the mental life of the patient and exact their tribute of his every thought. During all this period of development, with the exception of the incipient stages, however, there has been very little emotional abnormality. The only emotional disturbances are those naturally incident to the character of the delusions, such as anger, vexation and the like.

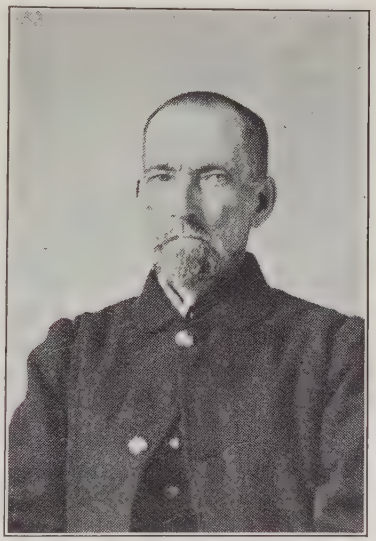


FIGURE 1. Photograph of a man with delusions of persecution; bearing the facial expression of suspicion. A case of paranoia of long standing.

At first the patient flees from his persecutors, going from place to place in his endeavor to escape, and finds temporary relief in each new place for a time until his enemies find him out. Keeping this up for a while until he finds it futile, he endeavors to protect himself from them and gets up all sorts of elaborate devices, depending, of course, upon the character of the delusion. The keyhole and the cracks about the door and windows are stuffed with papers, the bed insulated by having the legs set in dishes of water, the food carefully tasted and often discarded. Finally, all these means failing, in sheer desperation and driven almost frantic by the continuous persecutions, he turns upon and attacks his supposed enemies. Magnan speaks of these three stages by saying

that at first he flees, then defends himself, and finally attacks. (Il fuit; il se défend; il attaque.)

During this period of persecution the patient, when speaking of his persecutors, at first uses the pronoun "they." He is no more specific than this, but finally he may learn exactly who are at the bottom of all his troubles. When he finds this out he may at once become a dangerous lunatic, liable at any time to acts of violence of a homicidal character. These patients belong to the most dangerous class with whom we have to deal, especially because of the retention of their intellectual faculties.

After this condition has continued indefinitely the third stage of the disease may supervene. The patient develops *ideas of self-importance*. These ideas may come about, according to MAGNAN, in one of three ways. First, spontaneously. Second, through the mediation of the hallucinations—the voices, for example, telling the patient that he is some great personage. Third, as the result of logical deduction—if so many people, such powerful organizations are interested in his downfall he must indeed be some great personage, rightful heir to a throne, or inheritor of vast estates. The development of this idea of self-importance, noble descent and the like constitutes the transformation of the personality characterizing the third stage of the disease.

As completely as the delusion of persecution occupies the field of consciousness at this time and as thoroughly as it may be systematized, we find in this as well as in the second stage still further evidences of elaboration of the false beliefs, with their projection into the past life of the patient even as far back as his childhood—*retrospective falsifications*. In the light of the recently acquired facts many experiences of his early life, which heretofore have seemed mysterious, find their explanation. His so-called parents are not his true parents, and he knows now that the strange woman who used to visit the house and always kept her face heavily veiled must have been the emissary of his royal father—*retrospective explanatory delusion*. The whispered conversation of his parents after these visits had reference to him, and the glances of the servants showed that they suspected something strange about him—*retrospective ideas of reference*. Often the patient recalls remarks that were never made, occurrences that never happened in further support of his false beliefs—*retrospective falsification of memory*.

With the development and elaboration of these ideas of self-importance the general attitude and appearance of the patient change. From being suspicious, resentful, irritable and antagonistic, he becomes more complacent and self-satisfied. He is a great personage who will shortly be proclaimed as such to the world. Often, too, he will tell at great length of the various methods used by his persecutors, only to show his wonderful sagacity and prowess in defeating their ends.

This *transformation of the personality* is the natural result of what has gone before. We have traced our hypothetical case through the hypochondriacal stage of disorder of the somato-psychic consciousness and seen in the second stage the systematized delusion of persecution gradually grow from an insignificant beginning to a state in which it dominates, to the practical exclusion of everything else, the consciousness of the individual. This delusion involves, in the main, the allopsychic consciousness. It is not strange, then, that the remaining sphere of the autopsychic consciousness should finally be encroached upon. (See Chapter VII. Transformation of the Personality.)

This description of what MAGNAN and his followers meant by paranoia would indicate a degree of regularity and definiteness in its evolution that the facts rarely warrant. In certain individuals such an evolution may become stationary at any point and the third stage in many cases is never reached. The symptoms of the first stage are found in the second, and these in turn in the third, although here the general mood and ideas of self-importance may dominate the picture. The development and elaboration of the disease is by a continuous addition rather than a substitution or modification of symptoms.

The fourth and final stage of the disorder is that of progressive mental enfeeblement—the stage of dementia.

The disease, instead of running the regular course above described, may show certain variations. Aside from becoming arrested at any given point, as already mentioned, the principal one is the early appearance of ideas of self-importance which may even occur contemporaneously with those of persecution. Ordinarily, however, the several varieties are clinically differentiated because of the special content of the delusional system.

The following case report gives an account of this form of paranoia. It shows the early disordered sensations, the delu-

sional interpretations, the hallucinations and the ideas of grandeur. The patient is a young man recently come to this country.

Five years ago, in 1907, patient had sensations of a worm crawling up into his throat, tickling his palate. This worried him a great deal, so he consulted an apothecary who gave him a dose of medicine with the idea of ridding him of this worm. However, he believes that this worm may have been but an evil spirit which was put into him to give him an inspiration. This worm continued to bother him with disagreeable sensations in his throat until 1910, when after completing a series of six letters, written to one of the London daily papers, and only one of which was published, he was no longer bothered by the worm and it seems to him that this worm, after having accomplished its object, that is inspiring him to write these letters, was killed within his chest by some mysterious force, perhaps an Angel of God. These six letters which he wrote to the London paper dealt with the subject of "Why men no longer marry." The two great arguments he mentions are prostitution and the fact that women are taking men's places in the business world, thus reducing their salaries. An angel has been appearing to him about once a week, seeming to suggest various things in connection with his thoughts and to impress upon him what is wrong and what is right. Ofttimes she has spoken a few words, but she communicates with him mostly by gesture and signal. On November 18, 1911, while asleep, he felt a tapping on his shoulder, and heard a voice repeat over and over, "You are God." He awoke at the last tap on his shoulder and heard the voice for the last time say, "You are God." Since that time he has written letters to Mr. Hearst, editor of the New York American, about the Millennium, incorporating in his article the idea that every member of a community should be nourished through the medium of currency just as each member of the body is nourished with blood, and that everyone should be a civil servant, that is in the civil service. On January 22, 1912, he wrote a letter to President Taft, the subject of which was "Kingdom." In this letter he stated that he believed himself to be Christ in his second appearance on earth. On January 24, 1912, the evening before he came to Washington to see the President because he had not received an answer to his letter nor had it been sent back as he had requested, he had a dream; in this dream he saw an angel lying upon a bed; he heard her speak to him, saying, "If you go across the street and get me a nice brown cake, you may lie with me." This dream seemed to be a revelation to him. The angel signified the American people as they are represented in the Statue of Liberty, and Columbia. Buying the cake meant the outlay of money which would be necessary in his trip to Washington to see the President. Lying with her meant his acceptance by the American people, as Christ.

Krafft-Ebing[7] first considers paranoia under two great heads, which are classified as *early* or *original paranoia*, beginning even

[7] Krafft-Ebing, R. von: Text-Book of Insanity. Philadelphia, F. A. Davis & Co., 1904.

in childhood, and *late* or *acquired paranoia,* beginning late in life. Original paranoia occurs only in patients with very marked hereditary taint, and as SANDER—who originally used this term—most admirably expresses it, the abnormal condition develops and unfolds itself in the same way that the normal mind develops and unfolds itself in the normal individual. Acquired paranoia, on the other hand, develops in an individual, who, except for his hereditary taint, may appear to be a normal person. While in late paranoia there is, as we have seen, a transformation of the personality, a change in the individual wrought by the disease process; in original paranoia there is not a transformation but an unfolding of a personality which is from the beginning pathological. A further general subdivision of cases is based on the presence or absence of hallucinations. So we have *paranoia hallucinatoria,* in which the hallucinations play a prominent part in the elaboration of the delusional system, and *paranoia combinatoria,* in which hallucinations do not occupy a prominent place or are altogether absent, the delusional system growing on the basis of idea-association.

The late or acquired paranoia is subdivided into two great groups, those in which the delusions of persecution are the most prominent features would be classed as *persecutory paranoia,* while those in which grandiose ideas predominated would be classified as *expansive paranoia.* In the former group is included the *querulous* or *litigious* variety which by some is considered to occupy a position midway between the original and acquired, and, as in the original, hallucinations do not play a prominent part in its evolution, and also as in the original, the delusions often contain elements of truth and often develop on the basis of some actual occurrence, more particularly the loss of some law suit. They are notable not only because of their apparent—in fact their real—adherence to facts, but for their convincing character.

The latter group includes that host of unbalanced dreamers who are frequently known as "cranks," and who may be further classified on the basis of the content of their delusional system into *inventive, reformatory, religious* and *erotic* varieties. These patients have made some wonderful invention, are destined to carry on great reforms, are the vicegerent of God, or believe themselves beloved by some royal person. The following is a case of

so-called erotic paranoia in which the erotic projections were prominent.

Family history shows nothing worthy of note. Patient's early childhood presents no abnormalities. He had a common school education. At the age of ten, he had quite a severe illness. While working on his father's farm he conceived the idea of becoming an inventor, which his folks discouraged so greatly that he left home and went to Chicago, where he worked as hostler and coachman, giving excellent service. In 1899, he obtained his first patent, it being for a special bicycle hub. In connection with his attempts to make this patent a financial success, he first showed ideas which might be termed paranoid. The man to whom he gave a half interest in his patent failed to manipulate the stock of the company which was incorporated in proper manner, and the people who became interested in his proposition he thinks were mostly sent by other manufacturers to discourage him in his attempts to make something out of it. In 1906, he patented a brush which he induced the Pullman car people to try, but they were not a success because of the activities of the whisk broom manufacturers, who, in league with the porters, caused them to be returned as defective. He has continued up to the present time manufacturing these brushes in a small way, and devoting his time to perfecting machines in order to increase their output. According to his statements he has a financial rating of $1,000, and says he would have more money had he not spent so much in models for his machinery. Among the pamphlets which he has gotten out for advertising purposes, was one dealing with American wealth marrying foreign titles, which he wrote about the time Miss Katherine Elkins and the Duke of Abruzzi were prominent names in newspaper headlines. With this article he had his picture published, one taken about fifteen years ago, when he said he was a very handsome man. He denies the use of drugs, and rarely takes a drink. He masturbates at least once a week, and sometimes oftener.

About three years ago while visiting in Washington, he dropped into the National Museum to look over some propeller models. He believes that Miss Katherine Elkins entered the building carrying a coronet in her hand; that upon seeing him, she said: "There is the man who caused me to do this. He is not so handsome as his pictures, but his writings are so penetrating." From this statement, he became convinced that Miss Elkins had obtained one of his pamphlets, had seen his handsome picture, and as a result, had broken off her engagement with the Duke. A short time later, he saw her again in his Chicago bank, motioning to him to come to her. A year later while in Washington, he again saw her in a carriage on Pennsylvania Avenue. He heard her call to him. Once while walking along a street in Chicago, her sudden appearance before him he believes to have saved his life, as it caused him to halt, just as a man fell from a ten-story building to the pavement at his feet. A short time later, he saw her walking along the street, and heard her say to a woman companion, "I do not object to him because he is poor." Sometime this last

summer, a somewhat cultured looking old man, purposely dressed rather shabbily he thinks, came to room with the janitor of the boarding house, directly across the hall from his room. He believes that this old man and several others who stayed a shorter time, were agents sent by the grandfather of Miss Elkins to observe his life. Of this he was rather glad, for he wanted the Elkins family to know that he lived a clean, irreproachable existence. Ever since the occurrence at the National Museum, he has written quite regularly to Miss Elkins, and because he has received no reply requesting that he cease doing so, believes she gave her consent to his correspondence. When about a year ago he called at the Elkins home, to see Miss Elkins, and was rather brusquely turned away, he conceived the idea that the family knew of her love for him, and was attempting to keep her from seeing him. Some time this fall, intending to make his annual trip to Washington, he wrote a letter proposing to Miss Elkins, and on his arrival in the city went to her home on K Street to have the matter settled one way or the other. However, when he called at her home, he was requested to call that afternoon. During the day, he busied himself talking with a patent attorney on the advisability of patenting a model which he had constructed demonstrating that the earth's axis is horizontal instead of perpendicular. When he went for his noonday lunch, he had to wait so long for what he had ordered, that he believed that he must have been doped by parties who were bent upon preventing him seeing Miss Elkins. When he returned to the Elkins residence, he was adroitly conducted to the police station. He was taken to the Washington Asylum Hospital, where he saw Miss Elkins come in to lead him out; he is sure it was she by the warmth of her hand.

Medical certificate states that patient is not addicted to the use of narcotics. The first symptoms became manifest by patient requesting protection from the Attorney General for his patent rights. Present symptoms: Patient says he has a patent for making brushes and that they are so good and so widely used, that the other manufacturers are jealous and attempt to harm him. They go around quietly and destroy his brushes. He has made a model of the earth and sun, which shows that the present knowledge of astronomy is incorrect. He says if the other manufacturers got a chance, they would do him bodily harm. He says his patent rights are worth from one to five million dollars. He has also invented a patent flying machine which is altogether different from any of the 1911 models. He says it is different from any on the market. He has also invented a motor boat propeller which is a great improvement on the existing ones. Says that a certain party is having him watched. This man is jealous of him on account of a woman. Says he is the best inventor living. Says some time ago he wished an enemy of his would die, and he died. Saw a vision. No homicidal or suicidal tendencies.

Since patient has been here, and thought over some of the past events, he believes that a man who came to visit him in Chicago put some dope in the cigar which he was smoking. He seems much concerned as to the little business which he is conducting in Chicago. He states that if he

were free, he would go directly there and not return to Washington, and drop this love affair entirely. He laughingly states that the idea which his model illustrates regarding the earth's axis will some day be taught in the public schools, and it will be said that he, the discoverer, was arrested, tried and adjudged insane the first day he presented it.

FIGURE 2. Woman of fifty years with delusions of persecution and grandiosity. An example of the true paranoia of Kraepelin with excellent preservation of the personality and in keen touch with reality.

In these individuals the idea of self-importance quite obscures the persecutory ideas, which, if they are present at all, become a negligible quantity, while in many cases they are not present in the true sense of the term. A reformatory paranoiac may be prevented from doing as he wishes by the civil authorities, whereupon he believes himself persecuted, but this is not a true delusion of persecution in the sense this term has been used in describing paranoia. When such patients are interfered with they usually resent it and often rebel. They are then designated as *persecuted persecutors.*

This whole anomalous group of paranoiac psychoses developing upon a markedly predisposed background, in individuals of a strong hereditary taint, has been designated by the French as the *insanity of degenerates.*

KRAEPELIN'S[8] conception of the paranoia group is radically different. He would throw all of the cases of MAGNAN and many

[8] Kraepelin, Emil: Psychiatrie. In the eighth edition of his work he has tentatively created a group—Paraphrenia—which includes the dementia paranoides, formerly included in dementia precox, and certain other paranoid states which do not show the characteristic disorganization of the personality and the defects of affect and will of the precox (see Chap. XI). The main disturbance is intellectual. It would seem that this group occupies a midposition between his paranoia as described above and the

of KRAFFT-EBING into his group of paraphrenia (see p. 221) while the rest he distributes as paranoid states occurring in several different psychoses.

For him hallucinations are excluded from the picture, in which concept he differs essentially from the trend taken by HEINROTH and his followers. The disease is a chronic, incurable psychosis, of insidious origin, slowly developing by the gradual systematization of delusional ideas of endogenous formation. This system of delusional ideas is enduring and unshakable and exists along with retention of the logical and orderly process of thinking apart from the specific complexes. There is no tendency to marked mental deterioration (dementia).

The following is a very brief summary of such a case. It gives quite an inadequate idea of a life crowded with events growing out of a delusional system and which have received the most complex interpretation:

White male, 63 years of age; admitted April 6, 1910, on a certificate which stated that the patient was taken to the Washington Asylum Hospital on March 7, 1910, saying he had been hypnotized, and that $36,000, which had been sent him by a firm in Philadelphia, had been stolen from him. He had been in what he called a hypnotic state, and had attracted considerable attention in the city. While he was in the Washington Asylum Hospital he wrote out in detail his life history. Briefly summarized his history shows that he has grandiose ideas, which are based upon what he claimed was an original discovery with him, namely, getting gold out of sea water, and also extracting gold, by his special electrolytic process, from auriferous quartz. He claims he has made fabulous sums by these means. He has travelled, according to his statement, over the greater part of the world; says the Jameson Raid and Boer War were the results of the British Government attempting to stop his company's production of gold, which was demoralizing the gold standard. He gives in detail in the history various experiences connected with his delusions, which are evidently falsifications. He states that twice he has had a period of loss of consciousness; once in 1896 for six months, and recently, before his commitment to the Washington Asylum Hospital. His first period was caused by a blow on the head, inflicted by his enemies in order that they might secure his bank books which contained a record of his enormous holdings in various banks in New York, which money he had secured through his gold-producing efforts. Each time he was brought out of his period of loss of consciousness by a hypnotist named Mark

paranoid types of precox. He subdivides the group into four divisions, viz., paraphrenia systematica, paraphrenia expansiva, paraphrenia confabulans and paraphrenia fantastica.

Tracey, but what connection Mark Tracey had with his previous life has not been elaborated by the patient. For the past three years he has been endeavoring to form a dairy company for the production of desiccated milk, which he claims will prevent the sickness of children which have been dependent upon impure milk. In connection with the formation of this company he came to Washington to purchase various farms. He gives in detail all his experiences and interpretations in his autobiography —a voluminous document consisting of many closely written pages. An examination, however, shows that he has but a meager knowledge of the places he claims to have visited, and it is evident that he has acquired his knowledge by reading. He is rather an eccentric looking man, small, with long hair and shabby, worn-out clothing. He is very quiet, has not been talking about his ideas with the other patients, but has a few times casually mentioned them to the physicians; when questioned regarding them he is composed, talks in a moderate tone, and would not impress one as being especially egotistical. The ideas, however, are firmly fixed, and he can quite readily elaborate them. There is no evidence of mental reduction.

Delirium of Interpretation.—Sérieux and Capgras[9] have separated from the great paranoia group a certain number of individuals who because of their like symptoms and course they believe belong together and to which they have given the name of delirium[10] of interpretation.

The characteristics[11] of the delirium of interpretation are that it occurs in lucid, constitutional psychopaths, not mentally enfeebled. The affection is incurable, and is characterized by a proliferation of delusional interpretations which coördinate themselves into a system more or less coherent without notable dependence on sensorial disturbances. Lucidity is maintained throughout, the evolution of the psychosis takes place by a progressive extension of the false interpretations, and dementia does not eventuate as a consequence. Unlike some other paranoid conditions the false interpretations take their origin in actual facts. The patient because of his constitutional peculiarities, lack of critique and egocentricity, arrives at false interpretations by giving a personal meaning to everything that occurs.

[9] Sérieux et Capgras: Les Folies Raisonnantes. Paris, 1909.

[10] The word delirium is here used in the sense given it by the French, namely, to apply to the sum of the patient's delusional experiences.

[11] Sérieux et Capgras: Diagnostic du Délire D'Interprétation, Revue de Psychiatrie, Jan., 1908.

The following is a brief summary of a case:

White woman: 32 years of age. Father sustained a cranial injury, since which time he has shown symptoms of nervous and mental derangement. Patient was an eight months' baby. The history of her childhood shows nothing noteworthy. She received a good education. Between the ages of 18 and 21 she did housework and cared for her mother, who was ill. For one year she held a position as companion, after which she studied stenography and typewriting for six months. She obtained positions paying six and eight dollars a week. She then opened an office, but was handicapped on account of an occupation neurosis. In 1905 she secured a Civil Service position in the Government Printing Office, which she held until the time of her admission at the Sibley Hospital. Compensation was two dollars per day. She suffered from lead poisoning while engaged in this occupation. She claimed to have been persecuted in various ways since 1908—her business associates made uncomplimentary remarks regarding her; the men of her acquaintance made improper proposals to her; the woman with whom she boarded opened her mail and intercepted her telephone messages; the Catholics molested her in many ways. The latter part of May, 1910, she was visiting some relatives in the country, having left the city to avoid further molestations from her persecutors. She retired early one night, but was unable to go to sleep. She heard men riding past her window on horseback and saw the light of their lanterns flashed into her room. About midnight she heard stealthy footsteps approaching, and the mattress was rolled up over her feet. When she attempted to escape a strong hand seized her ankle. A struggle ensued but the patient escaped through the window, injuring her foot in the fall. She was taken to Sibley Hospital, but was later transferred to the Washington Asylum Hospital, from which institution she was committed. Her false interpretations are very extensive and elaborate. For example: a young woman, a switch board operator, left her position at the place the patient was living. She immediately elaborated an explanation, that she had been enticed away for immoral purposes and later when a nearby building burned down she heard a scream and was convinced this young woman had been burned to death in the building.

Delirium of Revindication.— Sérieux and Capgras believe that these two psychoses, the delirium of interpretation, and the delirium of revindication, should be all that are included under the term paranoia.

This psychosis may be defined as a chronic systematized psychosis constituted by the exclusive predominance of a fixed idea which imposes itself upon the mind as an obsession. It is a monoideism, developing in degenerates, and does not end in dementia.

There are two varieties of this psychosis—the egocentric and

the altruistic. Those of the egocentric type are usually persecutors, enemies of society, making claims for wrongs suffered that may or may not have some foundation in fact. Here we find the litigants, certain not understood writers and artists, certain hypochondriacal persecutors, amorous types, etc. In the altruistic variety the ideas are abstract, the theories impersonal and concern science, philosophy, politics, religion, etc. In this group are found the inventors, reformers, prophets. They are dominated by altruistic sentiments and far from being persecutors are often generous philanthropists. Often, however, in endeavoring to realize their ideals, they become dangerous fanatics of all sorts—mystics, anarchists, regicides. The diversity of all these forms is only apparent. There exists no real difference between a litigious persecutor and the searcher for the philosopher's stone. Their psychoses are all characterized by two signs: the prevailing idea and the mental exaltation.

The following is an example of the egocentric variety of this psychosis. The patient belongs to the querulous or litigant type of KRAFFT-EBING. He is an old negro man, a veteran of the Civil War.

He enlisted in the fall of 1863 in the 29th Illinois Colored Infantry in Chicago. Three days later he was sent on to Quincy, Ill., 160 miles south of Chicago. They went into camp and he remained there until May, 1864. At that time the soldiers were mustered from the State to Federal service. The patient was the captain of Company F, which consisted of colored soldiers, and he arranged his men in line for mustering. It was the custom for the captain to take the oath before the men did. One of the Federal officers asked the patient to take the oath of allegiance to the United States, renouncing his allegiance to all other countries, including Canada, where the patient had been born. The patient said that at that time he preferred to remain a subject of Britain and did not think that he should be forced to give up his allegiance, in that he had not enlisted under any such terms. Thereupon the officer refused to muster the company in but allowed the patient to remain at the head of Company F, taking charge of the post at Quincy, Illinois. The patient at once put the city under martial law. July 18, 1864, the company was sent to Chicago and was then requested to come to Washington, D. C., to be mustered in. Here again the patient refused to take the oath as was demanded of him and as a consequence they arrested him, took him from the company and sent him to prison at City Point, Va. After being confined there for a short time he was released, allowed to again take charge of the company, was promised pay at $100 a month for his services and in addition was not required to take the oath of allegiance. He says that he never received

any pay for his services. The patient let the matter rest until 1880, thinking that rectification would be made in due course of time when the War Department would discover the injustice that had been done him.

In 1880, under Garfield's administration, patient wrote a letter to Robert T. Lincoln, then Secretary of War. He called the attention of the Secretary to his (the patient's) case. Mr. Lincoln gave the letter to John Sherman, then Secretary of the Treasury, asking the latter to look into the facts in the case. Sherman later wrote the patient that he acknowledged his services during the late rebellion but that he had lost all rights for the payment of services on the ground of desertion. The patient states that his early refusal to give up his allegiance to England as a subject of Canada and his subsequent arrest and release had unjustly been the basis for the charge of desertion preferred against him. Patient kept up correspondence with Sherman for eighteen months, then Sherman asked him to make a full statement of his services and of all that led up to the charge of desertion. In reply Sherman stated that according to the records of the War Department, the patient was regularly mustered in the service of the United States and deserted therefrom at Petersburg, Va., in the face of the enemy and the charge of desertion that rested against him in the War Department could not be removed. Patient thereupon asked for the copy of the original records. Sherman submitted same. Patient sent the copy of record to the Secretary of War, Lincoln, asking that it be submitted to a Senate Committee for consideration. On March 17, 1882, it was proven, and admitted by Secretary of the Treasury, Sherman, before the Senate Committee, that the original records to correspond with the copied records which had been sent to the patient did not exist, that the charges against the patient were not sustained and that Sherman himself admitted that he had acted as he did because he thought that he was doing the best for the Government. The patient says that he thinks that Sherman was trying to beat him out of the money so that he could keep it for himself and that this was one of the main charges which resulted in the removal of Sherman from his position as Secretary of the Treasury. The patient says that he had demanded of Sherman $500,000 for his eleven months of service, the kidnapping and false arrest and for his having been put back into the service without being regularly mustered into the service of the United States. The patient says that a clerk from the War Department came to him with a message from President Garfield and that $275,000 was offered to him. He accepted the same and was told to wait until they sent for him. He waited until May 20, 1884, and then sent to the War Department again to look after the case. Representative McKinley (later President) took the matter up, showed that there were 83,000 other men on similar false charge of desertion and by Act of Congress exonerated them all, with the patient at the head of the list. President Arthur then ordered Secretary of War, Lincoln, to give the patient a certificate of exoneration and to pay over to him the sum of $500,000. The patient does not know whether Congress had passed a bill to that effect or not. He says that Lincoln tried to put up a job on him. He arranged to meet the

patient at the Second Precinct on U St. between Ninth and Tenth, saying that he wished to settle the matter with him privately. He was told that he was to be sent to the Government boarding house, for a few days while negotiations were going on, but to his surprise he was sent to this institution March 14, 1885. He remained here until October 6, 1886. The patient states that Dr. Lyons of this institution, who at that time was First Assistant to Superintendent Dr. Godding, tried to poison him by putting drugs into his food—some of the drugs were croton oil, arsenic, henbane, etc. The patient considers it all a plot of Lincoln's to keep the money from him and to take it himself. According to the patient, Dr. Godding helped him to get a writ of habeas corpus and the patient was discharged in the District Court by Judge Cox. The patient conducted the case himself and Dr. Godding testified to his sanity. In 1886 he had the case brought up once more before Judge Montgomery. His lawyer, Walker, would not undertake to argue the case and the patient thinks that he also was in conspiracy against him. Judge Montgomery took the case from the jury and decided it himself, giving as his opinion that the patient's claims were not supported and deciding against the patient.

The patient again had the case brought up before the Senate and he says as a result, the judge was removed from the Bench. The patient claims that the Judge also was bought off by Lincoln, who was then no longer Secretary of War. The patient is sure that Lincoln got much of the money that he himself was entitled to. He says that he learned of this from the papers, that $250,000 was missing from the Treasury Department, that this was one half of his own money and that it was appropriated by Lincoln. The other $250,000 is still in the Treasury for him. Mr. Lincoln is now the President of the Pullman Car Company. The patient now desires to get the other $250,000. He promised to give Mr. Harbough and Dr. Glueck and the examiner a goodly portion of what he gets. Patient says that Cleveland tried to have him get his money but was held off by friends until the expiration of his administration; that President McKinley had practically decided to see that he got his money when he was assassinated; that Roosevelt had the matter up and had it all settled on the eve of his going out of office and that the case was also settled by Mr. Taft but that the money is being held up by both the political parties. Patient says that President Taft in his inaugural address spoke particularly of his own case and promised to see that he got the money. The patient claims that all the big men, not only in the United States but in every nation, know about him and his case; that it was the cause of the war with Spain, that Mr. Hill, who last week resigned from ambassadorship to Germany, was asked to resign because he was one of the conspirators in the case and that he knows of several prominent men, including former Secretary of the Treasury Shaw and the present Secretary of War, Mr. Dickinson, who have their foot in the plot. He claims that he has been poisoned every once in a while for many years. Even things that he bought in the different grocery stores contained some drug or other. He says that Dr. Lyons, of New York, who was interested in the case on his first admis-

sion, has conspirators in this institution at the present moment. He is not sure whether or not he is being drugged at the present time. He says he would go to work if released but thinks he would soon be sent for to settle the case with the Government. Patient says he won't trouble them but he will not be out a day before their consciences will burn them so that they will come to him. He will then see that various officials in this institution will receive their just share of the money that he obtains.

The difference between this psychosis and the delirium of interpretation is well shown in the beginning. It has for its point of departure a fixed idea, while the delirium of interpretation arrives at a fixed idea only after a prolonged preliminary phase. The differential diagnosis is made difficult by several points they possess in common and also by the existence of combined psychoses or mixed types.

The symptoms in common of these two forms are: the exaggeration of the personality, the tendency to mistrust, the permanent lucidity, the absence or rarity of sensorial disturbances, the absence of intellectual enfeeblement, and in some cases the apparent similarity of reactions.

Acute or Mild Paranoia and Paranoid States.—The question whether the term *acute paranoia* is to be retained is now pretty well decided in the negative. The existence of paranoid states in some of the acute, curable psychoses has in the past undoubtedly been largely responsible for the persistence of HEINROTH'S concept of an acute form (Wahnsinn). Since the inner significance of paranoid states has been better understood and their occurrence in many acute, curable psychoses known, it has been possible to separate out those trends belonging to other psychoses. When this is done a certain few cases are found to remain that may properly be classed as *acute, mild,* or *curable paranoia.*

These mild paranoias[12] develop as the result of some mental conflict. Persistent mental perturbation over some condition which can neither be changed nor adjusted to. Under these conditions a system of delusions develops, endogenous in origin, which may or may not be accompanied by ideas of reference and which tends to be pretty well confined to the conflict—*circumscribed psychosis.* Hallucinations are lacking. After a varying period the affect subsides, the patients are able to resume their position in life but the false ideas are not corrected. There is recovery without

12 Studies in Paranoia. Nerv. and Ment. Dis. Monog. Series, No. 2.

insight. Some of the cases in severely tainted psychopathic individuals are quite brief; many, however, last two or three years before calm is secured.

The adjective *paranoid* or *paranoiac,* meaning like paranoia, is applied specifically to mental states showing more or less systematized delusions of persecution and hallucinations of hearing. Many different mental disorders may present paranoid conditions and not infrequently paranoid states are met with that are quite difficult to definitely diagnose, so that the term is in frequent use.

These paranoid states are met with in dementia precox, paresis, the toxic psychoses, hyperthyroid and hypopituitary states, the psychoses of the involution period, manic-depressive psychosis, and in fact in practically all of the various types of mental disease. In general these states are transitory and while presenting the various symptoms of the disease in which they occur are usually further characterized by a less stable and coherent organization of the delusional system which is exogenous in origin. The paranoid states that occur in hypomania are particularly difficult to diagnose, while those which follow other psychoses, especially the toxic and infectious, as from alcohol, cocaine, typhoid, are particularly persistent, often lasting for many months. These conditions have given origin to the term *secondary paranoia.*

Interpretation of the Psychosis.

Freud's Conception of Paranoia.[13]—In the sexual development of the individual a narcissistic and homosexual stage is passed through. The homosexuality, however, is not left behind in this process of development but the homosexual libido is sublimated, that is, its energies are drafted in other channels such, for example, as social activities. Freud believes that in the paranoiac there has been a fixation in this process at the homosexual level of development and a regression of the sublimated homosexuality. The delusion of persecution is an attempt to guard against homosexual tendencies. The homosexual love of the patient is effectually disguised by being turned into fear of the loved object. The delusion of grandeur is a turning back of the

[13] Freud: Psychoanalytische Bemerkungen über einen autobiographisch beschriebenen Fall von Paranoia (Dementia paranoides). Jahrbuch für psychoanalytische und psychopathologische Forschungen, Bd. III, 1911.

love from an object, the homosexual love, to love of self, thus reanimating the infantile narcissism.

The whole process is briefly and ingeniously set forth by Freud by means of ringing the changes—supposing the paranoiac to be a male—upon the basal sentence "I love him," thus:

Delusions of persecution contradict the verb. "I love him" is resented by the individual who reacts to the feeling by "I do not love—I rather hate him." Then this feeling of hate is projected with the result "he hates (persecutes) me, which justifies my hating him." As a result, this feeling, appearing to come from an outer conception, becomes "I really do not love him—I hate him—because he persecutes me."

Erotomania contradicts the object. "I do not love him—I love them," then "I notice that they love me," then finally "I do not love him—I love her—because she loves me."

Delusions of jealousy contradict the subject. "Not I love the man—she loves him."

Delusions of grandeur result from a total contradiction—a rejection of the whole sentence. "I do not love at all, and hence I love nobody." As the libido must be accounted for this is equivalent to "I only love myself."

This mechanism is very important to understand because of the great prevalence of paranoid types of reaction. Paranoia, in its pure form as described by Kraepelin is a rare disorder, but paranoid states are among the most common symptoms of the psychoses, either constituting the main part of the picture or being incidental to more fundamental disturbances (dementia precox, general paresis) and, too, being commonly encountered among the acceptedly normal. The young man who hears voices calling him vile names and accusing him of homosexual experiences and the young woman who is being followed and persecuted by men are familiar pictures to every psychiatrist. The explanation of a breaking down of the sublimation of the homosexual libido is an extremely illuminating one. The patient seeks for an attachment for his libido, the homosexual object does not return his feelings in kind, it is a forbidden object, he therefore only gets pain, not satisfaction and fulfillment—and this pain is felt as coming from the object—*projection*. The fact that in the delusions the object is often of the opposite sex does not negative the explanation as the explanation already given indicates, it may be considered as

a form of disfigurement, a disguise for the homosexual libido which is permitted to appear only in the conventional heterosexual trappings.

In speaking of the voices heard by paranoid patients REIK says[13a] very illuminatingly: "We know that people suffering from them hear voices speaking to them in the third person, incessantly observing and criticising all they do and leave undone. According to Freud this critical faculty can be traced back to parental criticism, and the development of the conscience is reproduced in retrospect by the sufferers, who now again project the voices back to the outer world whence they came. It is a characteristic fact that the voices they hear talk about them in the third person; it is supposed that this represents the memory they have retained of their attendants in infancy who observed and commented together on the child's movements. Their place is later taken by other people and eventually by the community ('public opinion')."

Course and Prognosis.— The paranoias of MAGNAN, KRAFFT-EBING and KRAEPELIN and the deliria of interpretation and revindication, as described in this chapter, are chronic, irrecoverable psychoses.

The insanity of degenerates is not infrequently interrupted in its course by intermissions of variable length; in fact MAGNAN says recovery often takes place. The mild forms recover in variable periods without insight. Seriously abnormal individuals having evident vices of organization, hereditarily burdened, the degenerates of the French, develop paranoid conditions quite easily under stress of circumstances and often as easily get well. This is well shown in the paranoid conditions that develop in criminals during imprisonment, the so-called *prison psychosis*.

The *délire chronique* of MAGNAN has been classed by many authors as a form of paranoid dementia precox. The course and prognosis of the paranoid states that occur in association with the different psychoses is, of course, the same as that of the psychosis of which they are a part.

Differential Diagnosis.—The principal diseases with which paranoia is apt to be confused are the paranoid forms of dementia precox. The principle of differentiation rests with the occurrence

[13a] Reik, T.: Psycho-Analysis of the Unconscious Sense of Guilt. Internat. Jour. Psa-An., Vol. V, Pt. 4, October, 1924.

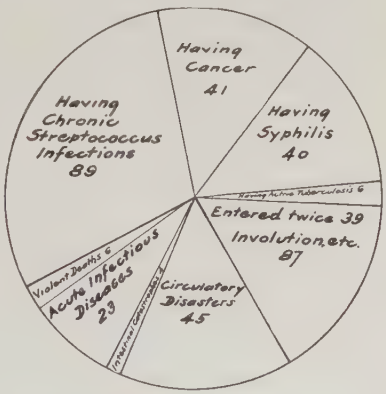
in this form of dementia precox of signs of deterioration foreign to the classical type of paranoia. The deterioration, however, may not be very apparent in the early stages and time may be required to make the differentiation.

Pathology.—Paranoia has heretofore had no definite somatic pathology. The reason for this seems to have been the feeling that pathological changes, in order to account for mental disease, must be found in the cortex. With the present conception of the organism as a unity it can be seen how any inadequacies of functioning of the individual as such, as a whole, may be reflected at the psychological level as abnormal mental states. In harmony with this idea LEWIS has found[14] that in paranoid states the somatic pathology can be expressed as can the psychopathology, namely, as a tremendous effort at compensation. Just as, at the psychological level, the delusional system compensates the patient for a reality that is unendurable so at the somatic level there are, throughout the body, areas of defect and areas of hyperplasia (compensation). The main stress, however, seems to fall upon the circulatory system, so many of these patients seem to die a vascular death. (See p. 232.)

The accompanying figure shows the results of autopsies by FREEMAN of cases[14a] with paranoid type of reaction.

The hereditary taint is sometimes manifested by errors of development — giving rise to malformations generally known as *stigmata of degeneration;* abnormalities in the course of the cerebral vessels and asymmetries and abnormalities of gyral configuration have been noted.

Treatment. — There is no pharmaceutical treatment for this disease. In general it may be said that many of the chronic cases require to be



Disease incidence and causes of death in paranoid group. Male and female. 302 cases.

[14] St. Elizabeths Hospital material.
[14a] St. Elizabeths Hospital material.

cared for throughout their lives in an institution. They are peculiarly unfit to live in the outside world, and sooner or later, as a result of their general conduct or some overt act, are apt to be committed as insane.

With the changes that are coming about in the general viewpoints of psychiatry even conditions which have for long been considered hopeless are being attacked therapeutically. We are just beginning to see possibilities in the paranoia situation. The most notable success is that reported by BJERRE,[15] who successfully treated a case of ten years' duration. The psychoanalytic approach to many paranoid conditions is quite successful.

The paranoiac character differs in different persons perhaps as much as the average character. While some paranoiacs are dangerous and should be kept confined, others show no dangerous tendencies, are perhaps naturally timid and never would do any harm, while still others have become resigned to their difficulties. While many of this latter class may often get on for a time, at least, outside of an institution, they should be kept under constant observation, so that changes in their delusional system and in their character of reaction can be noted. Psychoanalytic study is showing more clearly what constitutes the danger symptoms in these individuals. A tendency to mysticism and highly evolved symbolism is the external expression of an effort which leads away from antisocial conduct.

In the mild cases an effort should be made to correct the conditions out of which the conflict developed which was the determining factor in the paranoiac reaction. This can often best be done by an entire change of surroundings which, of course, among the poor, and those in moderate circumstances, means removal to an institution.

A better outlook for therapy in this group has been opened by the psychoanalytic mode of attack and psychoanalytic principles will undoubtedly enter largely into a better type of psychotherapy for this whole group of individuals, who in spite of profound mental changes nevertheless handle their conflicts better than other closely related reaction types.

[15] Jahrbuch für psychoanalytische und psychopathologische Forschungen, VIII, pp. 795–847. For an account of this case in English, see White and Jelliffe, Modern Treatment of Nervous and Mental Diseases, Vol. I, Chap. XIV, and Payne: Some Freudian Contributions to the Paranoia Problem, The Psychoanalytic Review, Vol. II, No. 1 et seq.

CHAPTER IX.

Manic-Depressive Psychoses.

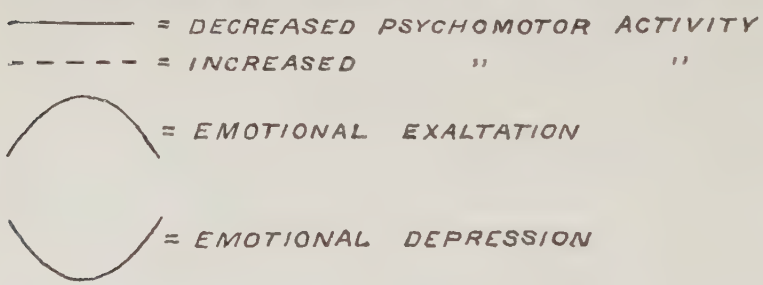
Historical.—In the older psychiatry a very large proportion of patients were classified as manics or as melancholics. Practically all excited and exalted patients were included under the designation of mania while all the depressed patients were classed under melancholia. These two psychoses were generally conceded to be recoverable, the percentage of recoveries being figured as high as ninety by some. Then again certain cases were recognized as having a periodic tendency in which attacks of mania and melancholia followed one another in regular succession. These patients were conceded to be incurable and the anomalous circumstance was recognized of an incurable disease process being constituted of phases each one of which consisted, apparently, of an attack of the most curable form of mental disorder.

This concept continued until Kraepelin came forward with a new synthesis by demonstrating that "circular insanity" manifested certain fundamental symptoms which were characteristic of mania and melancholia and also that mania and melancholia rarely occurred in isolated attacks but, on the contrary, during some part of their course exhibited symptoms of the opposite condition—mania of melancholia and melancholia of mania. This analysis gave rise to the conception of a single disease group of which mania, melancholia, and circular insanity were simply different manifestations of one process to which Kraepelin gave the name manic-depressive psychosis—the name indicating the principal phases of its manifestations.

Etiology.—The principal cause has generally been supposed to be hereditary taint, and it is noteworthy that this disease is often found in families, the constitutional condition as the basis on which it develops appearing to be directly transmitted. Although concomitant conditions of stress are apparent with the first and even subsequent attacks and appear to condition them, still these attacks are often much more noticeable for their apparent lack of cause, their spontaneous onset thus evidencing their deep-seated

constitutional origin. While this is obviously true, a more careful inquiry will very often develop difficult situations in the patients' lives which immediately precede the attack and which seem to have been the cause for it. The causative relation is more obvious in some cases in which we see practically the same circumstances develop just before each breakdown such as overwork, family quarrels, etc. The real psychogenic factors are unconscious and therefore not apparent on the surface. Those patients who develop attacks spontaneously, as it were, that is, without apparent cause, belong to the *endogenous type* of the disease, while those patients who develop attacks in response to more or less obvious disturbing factors in the environment or to special stresses belong to the *reaction type* of the disease.

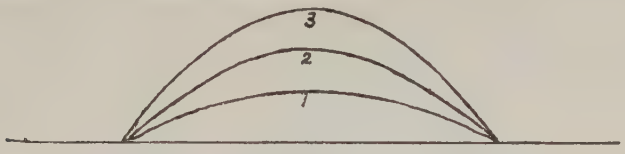
General Symptomatology.—Before proceeding to a description of the different trends shown in the manic-depressive psychosis it may be well to pause for a few moments and study the following diagrams which endeavor to set forth graphically how



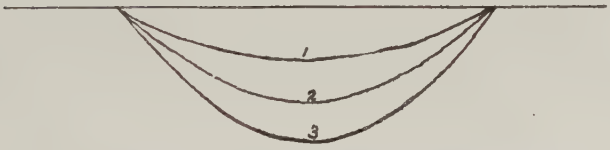
the various symptoms of the disease may be combined. If note is first made of the general way of representing the opposed conditions of the psychomotor and emotional states what follows will be perfectly clear without further explanation.

The fact must not be lost sight of that the graphic method here used is only employed because of its convenience in picturing the several varieties of the disease. The representation of depressed phases by a curve below and excited phases by a curve above the normal must not be taken too literally. These conditions are strongly contrasted only superficially. A deeper study shows their fundamental relationship. Also a change from depression to exaltation or vice versa would seem to be only possible by passing through a phase, let it be ever so short, of the normal.

This, as a matter of fact, need not occur at all. Bresler[1] has emphasized these points and thinks the different phases of the disorder would be more accurately portrayed by representing both



BASE LINE = NORMAL
1 = HYPOMANIA
2 = ACUTE MANIA
3 = HYPERACUTE MANIA



BASE LINE = NORMAL
1 = SIMPLE RETARDATION
2 = ACUTE MELANCHOLIA
3 = STUPOROUS MELANCHOLIA

RECURRENT MANIA

RECURRENT MELANCHOLIA

1 Bresler: Wesen und graphische Darstellung des manischen Symptomencomplexes. Psych.-Neurol. Wochenschr., Jan. 20, 1906.

conditions by curves below the norm—the manic phase being shown by a curve still lower than the depressive. More recent studies would indicate that this should be reversed.

Bodily Type.—KRETSCHMER[1a] has described a type of bodily configuration that seems to be closely correlated with the cycloid make-up: It is characterized briefly as follows:

Pyknic Type.—Characterized by the pronounced peripheral development of the body cavities (head, breast, and stomach), a tendency to a distribution of fat about the trunk, and a graceful construction of the motor apparatus (shoulders and extremities). In general the man is of middle height, rounded figure, with a soft broad face on a short massive neck sitting between the shoulders. The magnificent fat paunch protrudes from a deep vaulted chest which broadens out below. The limbs are soft and rounded with little muscle or bone relief, often quite delicate. The joints of the hand in particular are often slim and almost elegantly formed. The shoulders are not broad but rounded, high, and pushed forward together and often set down against the breast with a characteristically sharp depression on the inner deltoid curve. The shoulders seem to be slipping downward and inward over the swelling chest, the neck seems to disappear and the upper spine is slightly kyphotic. The point of the chin is directly joined with the upper forehead without any definite bends by a sloping line. The breast-shoulder-neck proportions, the shape of the head and face, and the disposition of the fat are characteristic. The face is, from the front, of a smooth five-cornered or shield-shaped type. The skull is large, round, broad and deep but not very high.

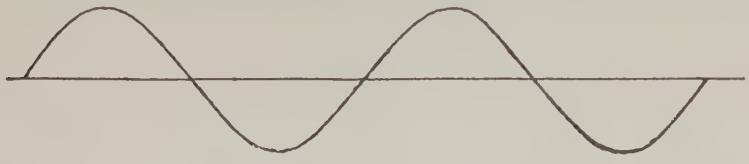
In describing this disease the two principal stages—the *manic* and the *depressive*—will be described first, then the various forms of *periodic insanity*, and finally certain irregular and unusual combinations of symptoms known as the *mixed states* will receive attention.

MANIC PHASE.

This stage of manic-depressive psychosis manifests itself by three cardinal symptoms, viz., (1) *Flight of ideas.* (2) *Psychomotor excitement.* (3) *Emotional excitement.* These symptoms may manifest themselves in any degree of severity and the con-

[1a] Physique and Character.

tent of consciousness may vary in different cases. For purposes of description it is convenient to divide mania into three grades in accordance with its severity. These grades also answer very well to the clinical types met with although it must of course be understood that the mania may be of any degree of severity and that in



CIRCULAR INSANITY

ALTERNATING INSANITY

a given case it may manifest itself in different degrees at different times during the same attack.

It must not be forgotten, too, that these three cardinal symptoms may not be all of the same degree of severity. For example

ALTERNATING INSANITY OF DOUBLE PHASE

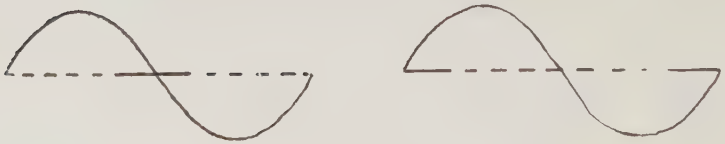
INSANITY OF DOUBLE FORM

the flight of ideas may be extreme, out of all proportion to the amount of psychomotor activity which may only show slight increase.

Hypomania is the term applied to the mildest of these degrees of maniacal excitement. Here in the simpler cases there is a disorder of the process of thinking rather than a disturbance in the content of thought. The separate ideas and even acts may not be unusual and yet when taken in their ensemble are seen to be distinctly abnormal. The example given by MERCIER[2] illustrates this very well. He says of a case of this sort, " Its subject rises early,

MANIACAL STUPOR

AGITATED DEPRESSION



MIXED STATES OCCURRING ESPECIALLY AT THE TRANSITION FROM ONE STAGE TO ANOTHER

full of schemes of business or pleasure. He fusses noisily about the house, indifferent to his disturbance of other people's slumbers. He is very impatient of delay, he cannot wait a minute for anything that he wants, and if it is not forthcoming on the instant, he flies into a rage. The course of the post is not expeditious enough for him. He sends his letters by telegraph, and his letters are extraordinarily numerous. They would be numerous in any

[2] Charles Mercier: A Text-Book of Insanity. London and New York, 1902.

case, but their number is doubled, and more than doubled, by the frequent changes of his mind, and by the impulsiveness with which he acts upon every passing whim. He determines to make some purchase, probably a very unnecessary one, but one for which he can adduce twenty plausible reasons, and he writes to tell his solicitor that he will call the next morning. Scarcely is the letter posted when he sees that he will attain his object more quickly by asking his solicitor to lunch. He telegraphs accordingly. Before his messenger returns, it occurs to him that he had better ask the vendor to lunch also. Another telegram is dispatched, and since he cannot entertain more than one visitor at his club, another must be sent to the solicitor to announce the change to a hotel. Then he remembers that he has been drawing heavily of late on his banking account, and that he may not have the necessary funds available. Another telegram to the bank. But if there are insufficient funds in the bank, he will have to sell stock to raise the funds; another telegram to his broker. Then he determines that it will be better to pledge the stock to the bank rather than to sell it. More telegrams to the broker and to the bank. The broker won't like the contradictory orders—never mind; ask him to dinner—ask them all to dinner. Put off the lunch and have a dinner instead, and ask the solicitor, the vendor, the banker and the broker. Yes, and why not Smith and Jones and Robinson as well? More telegrams; and then, since two out of the three of the invited guests decline, the whole thing is postponed, also by telegraph. Meantime, in the intervals of telegraphing, his hands have been full. He has been constantly ringing the bell and giving orders—giving them, modifying them, and countermanding them—constantly wanting something fresh, running up and down stairs, writing letters, haranguing this person and that, flying into a rage upon the slightest opposition, tearing the bell down on the slightest delay, and talking almost incessantly."

In this example the subject's acts might almost all of them be considered as normal with the exception of those due to undue irritability or anger. Aside from these each act is consistently directed to some definite aim. The disorder is not in the content of thought but in the process of thinking and the disorder of process manifests itself by a rapid, too frequent change of direction.

In this condition the patient is constantly active, busying himself about one thing and another, talking continuously meanwhile, often in a loud and rather boisterous manner, while emotionally, exaltation is manifested by good humor, a smiling countenance and increased self-esteem, punctuated mayhap by attacks of irritability or impulsive anger with little or no cause. His confidence in his own ability is unqualified and is shown in the outlining of all manner of schemes of work, investments, business enterprises and the like. Flight of ideas is marked though not of high degree, the conversation changing at frequent intervals from subject to subject and the activities show a like characteristic, there being no consistent effort directed toward any one aim for any length of time. Letters are often written in great numbers and their contents exhibit the same characteristics as do the speech and conduct. The patient is fully oriented, there is no clouding of consciousness nor delusions. In spite, however, of the lucidity and apparent abundance of energy the real efficiency of the individual is greatly reduced largely because of the lack of consecutiveness in application. Ofttimes the picture is complicated by the addition of symptoms due to alcoholic indulgence which is very common in patients in this condition, many of whom show marked moral delinquencies and because of their lucidity and facility of expression often elude the authorities, being at once discharged after examination when apprehended because of supposed insanity.

The next grade of maniacal excitement presents perhaps the most characteristic picture of this stage and is the classical condition of *acute mania.*

In this condition the flight of ideas is well marked even to the point ofttimes that the train of thought is apparently quite incoherent. *Distractibility* is a prominent feature and the almost constant flow of ideas frequently refers to something seen or heard in the environment. A tendency to rhyme is not infrequently present and words heard by the patient are often woven into or form the starting point for these rhymes which may be nothing more than a string of words of similar sound (*clang association*). It is quite remarkable how such a patient who is apparently paying no heed to what is going on about him will catch a chance word or phrase uttered by some one, perhaps a considerable distance away, and introduce it into the stream of his conversation.

Consciousness may be more or less clouded and there is often

some disorientation; this is especially noticeable for persons. This condition, however, is largely if not wholly due to the disorder of attention. The patient does not adequately perceive the environment, therefore a comprehensive idea of it is not obtained and in the rapid and transitory survey a superficial quality is often emphasized—perhaps some resemblance—and the person or object is mistaken. In this way the nurses and physicians are called by the names of friends or relatives and the surroundings are said to be those of some place the patient has been in the past. These errors are, however, often not firmly fixed and the patient may correct them spontaneously at times.

The disorders of attention, flight, distractibility are all elements in producing a content of consciousness in which all ideas have the same value. Nothing is attended to long enough to give it an importance greater than other experiences, ideas are voiced first about this subject and then about that, the patient changing from subject to subject without attaching more importance to one than to another, without being led by one idea to the exclusion of others—there is a *leveling of ideas*—all ideas reach the same level of importance in consciousness.

Hallucinations are not infrequent. They are usually elementary in character, simple and transitory.

Delusions may also be present but are not fixed but changeable, coming and going. They are usually of a grandiose character, but lack the element of extreme improbability or absolute ridiculousness often seen in conditions of deterioration. Occasionally a paranoid state develops with quite stable delusions of persecution. This condition is difficult to diagnose especially if the excitement is of a mild character as in hypomania.

The psychomotor activity is constant. There seems to be absolute inability to keep quiet—*pressure of activity*—the patient runs and jumps, turns somersaults, waves the arms about, tears up his clothing, destroys plants, breaks furniture, howls and yells all night long, going almost absolutely without sleep, often showing marked sexual excitement. The excitement is so great that these patients do not even take time to eat, food placed before them is perhaps tasted and then thrown about like everything else that comes in their way, so that emaciation soon becomes marked. In less marked degrees of excitement, however, it is common for this class of patients to gain in weight.

The *emotional exaltation* is marked and shown by boisterous laughter and remarks showing exaggerated ideas of self-esteem and personal prowess. The patients are apt to be very irritable in this condition and are constantly fomenting trouble of some sort on the wards where they are confined.

The third grade of maniacal excitement is merely a more aggravated form of the condition just described and may be called *delirious mania.*

In this condition the flight is so great as to amount to almost complete incoherence, the activity is unremitting, consciousness is more clouded and hallucinations are more in evidence. The condition leads to great exhaustion and physical depletion, and it frequently happens that, as a result of slight scratches and bruises obtained during the period of great motor restlessness, which are not allowed to be properly dressed, local areas of suppuration develop, so that a mild septicemia with some temperature complicates the picture. Exhaustion and toxemia are both now added, the clouding of consciousness becomes profound, a true delirium takes the place of the flight, marked by absolute incoherence and complete confusion (*secondary confusion*) with transitory and elementary sensory falsifications.

The *acute dilirious mania,* which used to be described as always and invariably fatal, was probably in a certain proportion of cases an aggravated form of the manic stage of manic-depressive psychosis. It is probable, however, that it was more usually an acute psychosis associated with some serious, though often unrecognized, condition of the internal organs, as *i. e.,* an acute nephritis or pneumonia. It can be readily seen how such conditions might be overlooked in patients so wildly excited and autopsies of late have tended to show that this was the case.

A very few cases, usually late in the history of the disease, do not recover in the usual length of time from their maniacal period. They pass into a condition of chronic excitement—*chronic mania*—which may in exceptional cases last several years. The exact nature of these cases is not understood.

Depressive Phase.

This stage of the manic-depressive psychosis also manifests itself by three cardinal symptoms, each one of which is opposed to the corresponding symptom of the manic stage, viz., 1. *Difficulty of*

thinking. 2. Psychomotor retardation. 3. Emotional depression.

This set of symptoms may, as in the manic set, manifest itself with any degree of severity and the three symptoms may not all vary proportionately. The retardation, for example, may be quite out of all proportion to the depression.

As with the manic phase it is convenient to consider the depressive phase in three different grades.

The mildest grade of depression is called *simple retardation.* The word retardation here, as frequently, refers not only to psychomotor retardation but to the difficulty in thinking, as the two phenomena are in reality similar manifestations in different spheres. This designation—simple retardation—is significant, too, because the emotional state is not indicated and as a matter of fact is of less importance diagnostically than the retardation.

These patients move slowly, speak slowly and in a low tone, often only just above a whisper, and by preference answer questions in monosyllables. They sit about with folded hands doing nothing; they are incapable of effort of any sort, even reading is not indulged in, for, aside from the effort required, what is read is not assimilated, ideas are not called up by what is read, and the continuous effort is impossible.

Emotionally the patient is depressed but the depression may not be at all marked and in these cases the facial expression may fail to indicate it at all. They often realize their mental invalidism and are distressed by it. Consciousness is not clouded and they are fully oriented.

The next grade of depression is the ordinary *acute melancholia.* In this condition the three cardinal symptoms of depression are manifested in a much more pronounced way. The patients are inactive, sitting by themselves, showing little or no tendency to associate with others, their movements are very slow and deliberate, and it often takes a considerable time to initiate them (initial retardation). The speech is similarly affected; it is slow, preferably monosyllabic, and often almost inaudible. Initial retardation is very noticeable here also. The emotional depression is profound and is indicated in the attitude which is in general one of flexion, the hands lie limp in the lap, the head is inclined forward so that the chin rests on the breast, the shoulders are also bent forward and the whole attitude, together with the facial expression, indicates sadness.

In this condition delusions are the rule and are typically *self-accusatory.* The patients think themselves responsible for all the sin and wickedness or privation and suffering in the world; they are the cause of the unfortunate condition of their fellow patients, have themselves committed some great sin, and are forever and absolutely lost. They very often, too, have *hypochondriacal ideas,* think they have some incurable disease, that their organs are decayed, something has happened to their brain, their bowels are stopped up and the like.

The changes in the organic sensations produce peculiar feelings which are variously interpreted, often leading to more or less *disaggregation of the personality,* the strange feelings being supposed to indicate mysterious changes going on within the body. A patient will keep going to the looking-glass to look at her eyes, averring that they look like cat's eyes, that they are cat's eyes. It is only a step from this condition to a belief in the complete transformation of the personality or a belief that another being has taken possession of her body and expresses itself in her acts.

Hallucinations also occur, but consciousness is usually quite clear and the patient may be fully oriented. However, a marked degree of clouding is not uncommon and hallucinations and delusions may be the outcome of insufficient perception of the environment, as in the instance previously cited of the patient who, profoundly depressed, was so wrapped up in her sufferings that she did not perceive the nurse bring the tray of food and set it beside her and when her attention was called to it thought it must have been placed there by some mysterious agency.

Physically there is almost invariably present constipation, coated tongue, indicanuria, poor appetite, loss of weight, with disturbed sleep and poor circulation, with cold and often blue extremities.

The third and most marked grade of depression is *depressive stupor.* In this condition the retardation has proceeded to such an extent that the patient does not speak. He lies in bed, often for days at a time, in this almost absolutely inactive state, having to be fed and his every want ministered to.

Hoch[3] has described the *benign stupor* reaction as being characterized in the main by extreme apathy and inactivity and preoccupation with the idea of death as almost the sole ideational

[3] August Hoch: Benign Stupors, a study of a New Form of Manic-Depressive Reaction Type. New York, The Macmillan Co., 1921.

content. There may be catalepsy and negativism but the apathy, inactivity, poverty of affect and lack of content are the controlling symptoms.

This condition of stupor is common in the course of melancholia and occurs as an episode more often than as a distinct form of the disease.

The Periodical Psychoses.

Under this head are included those forms which have been severally described as recurrent mania, periodic mania, intermittent mania, recurrent melancholia, insanity of double form, alternating insanity, etc.

All of these mental disturbances are merely different manifestations of the manic-depressive psychosis, the manic and depressive stages being represented in various relations, often separated by a quiescent period. Thus recurrent mania would consist of recurrent attacks of a manic phase separated by quiescent periods, similarly for recurrent melancholia, while the alternating type would consist of manic and depressive attacks, each followed by a quiescent period; circular types, on the other hand, being cycles of manic and depressive stages without intervals of separation, while a manic-depressive psychosis of double form would consist of cycles of excitation and depression, each cycle followed by a quiescent period. Other varieties might be described, but it suffices to say that the three stages—manic, depressive and quiescent periods—may be combined in any possible way, and that further in a given case any degree of the manic or depressive stage may occur.

The following is an account by an intelligent woman of her feelings in both periods of excitement and depression:

"I have suffered all my life from excitements and depressions, although it was not until I was fifty-eight years of age that my family and I realized that I was really insane and required institutional care. During youth and middle age my excitements were of a mild character, and during these periods I considered myself normal. I felt peculiarly happy and care free. I managed my household affairs with the greatest ease. I entertained and mingled in society with pleasure and zest. I was lively, talkative and I have reason to believe I was witty and entertaining. I could work without an effort. I at times accomplished almost Herculean tasks. On one occasion I remember preparing and conducting a church entertainment by which the sum of $800.00 was raised. Of late years my excitements have grown more severe. I begin by taking an overactive

interest in everything going on around me. Everything seems rosy. I feel happy and nothing depresses me. I feel propelled by some unknown force to constant action. I am possessed with the idea of righting wrongs and straightening out things in general. All the faults in the administration of the ward, the Hospital and the Government must be corrected.

* * * * * * * * *

"My excitements have never led me to commit any acts of violence. I occupy myself largely in talking and writing letters. My room is often in disorder because I cannot stay at one job long enough to complete it. As I feel these excitements approaching, I request the physician in charge of me to take up my parole, as I know I shall be moved to do and say many foolish things of which I will be ashamed later. No one who has not had experience can realize the mortification of having been insane.

"My depressions in early life were as mild as my excitements, the onset was gradual. I felt a disinclination to mingle in society. When forced to do so I sat like a "dummy" and could think of nothing to say. My household duties became a burden. One after another of these was dropped until the care of the household was entirely given over to relatives or servants. I learned from experience a treatment of my own. As soon as I felt a depression approaching, I promptly dropped everything and left home for a time. I found by getting away from family cares and responsibilities, and from the demands of society, to some quiet spot, I could shorten the duration of these depressions. In recent years the depressions have appeared suddenly. One day I went to town to do some shopping for a friend. I went to a grocery store to make some purchases. It suddenly occurred to me that I could make these to much better advantage at the market only a block away. Suddenly I realized that I did not have sufficient energy to go to the market, and that another depression was upon me. It was with the greatest difficulty that I ordered the goods, paid for them and came home. At these times my brain feels paralyzed. I have not the strength or ambition to do anything. I am apprehensive lest some harm has befallen the members of my family, but to save my life, I could not write or telephone to find out if my fears are true. I have the impulse to act, but it seems as if something shuts down and prohibits action. I see my clothes becoming soiled—I know I should change them, but I cannot pull out the drawer of my bureau and get clean ones. This inertia is greater in the morning than at night. Before I came to the Government Hospital I had servants who slept at home, and came to my house early in the morning. When my husband was away and my children were small, it devolved upon me to admit these servants early in the morning. I knew that when morning came to dress and go down stairs would be impossible. I solved the difficulty by dressing the night before and sleeping in my clothes. When the depression is most profound, I move in a fixed groove. I never vary a hair's breadth. At first I have a desire to remain in bed. Once this is overcome I have no choice but to remain up. I sit in the same seat and in the same attitude for weeks. As I come down stairs in the morning I am apprehensive lest my seat be taken, and I

wonder what I shall do if it should be occupied, although the sitting room is well supplied with comfortable seats. I bring a shawl with me, and place it in the chair so that no one will appropriate it while I am at breakfast.

"After each depression, I suffer from intense pain in my back, side, shoulders and arms. This is dull and aching in character, and remains with me for weeks after the depression has disappeared. After the last depression I suffered from a severe attack of the shingles. The skin eruption has now disappeared, but the pain still remains."

The mild grade of the manic-depressive psychosis, those cases in which it would be well nigh impossible to make a diagnosis from seeing a single attack, is sometimes called *cyclothymia.* Here one must get the history over a sufficiently long period to show the periodic changes of character in order to appreciate the nature of the trouble.

These cases are of great clinical importance because quite characteristically associated with visceral disturbances. In the mild depressions symptoms will be complained of which refer to the gastro-intestinal or the genito-urinary systems. The true nature of the case is usually not recognized and spontaneous recovery is referred to the treatment. Many of the so-called dipsomanias are dependent upon recurrent manic-depressive episodes.

The Mixed States.

The mixed states are forms of manic-depressive psychosis in which the three cardinal symptoms of the manic and depressive stages are mixed so that the resulting state is neither one. The best recognized are: (1) *Maniacal Stupor,* (2) *Agitated Depression,* (3) *Unproductive Mania,* (4) *Depressive Mania,* (5) *Depression with Flight of Ideas,* (6) *Akinetic Mania.* It will suffice to merely mention the symptoms of these groups.

Maniacal Stupor.—Emotional exaltation, decreased psychomotor activity, difficulty of thinking.

Agitated Depression.—Emotional depression, increased psychomotor activity, flight of ideas.

Unproductive Mania.—Emotional exaltation, increased psychomotor activity, difficulty of thinking.

Depressive Mania.—Emotional depression, difficulty of thinking, increased psychomotor activity.

Depression with Flight of Ideas.—Emotional depression, flight of ideas, decreased psychomotor activity.

Akinetic Mania.—Emotional exaltation, flight of ideas, decreased psychomotor activity.

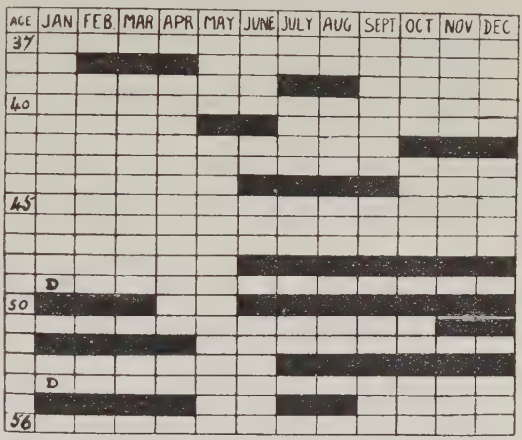
Still the possibilities are not exhausted. It is quite uncommon to see any one of the conditions already described continue pure from the commencement to the end of the attack. In the manic stage symptoms of depression not infrequently crop up and occupy the field temporarily, while during the depressive stage it is quite as common to note transitory periods of excitement. Then it is quite common for manic attacks to be preceded by a longer or shorter attack of depression, and sometimes such a period of depression follows, not infrequently but partial depression of the type of unproductive mania. The depressive stage shows similar variations, more particularly is it followed by a short period of exaltation. Then, again, at any stage of the disease a mixed state may crop up for a time, so that during the course of the manic stage psychomotor retardation may occur or during the stage of depression emotional exaltation may develop, while in the various forms of the periodic psychoses it is quite the rule to find these mixed states at the transition places from one stage to another, all of the symptoms of one stage not equally and contemporaneously graduating into the opposites. Thus during the course of a circular insanity the affect may change from depression to exaltation before the psychomotor retardation has given place to increased psychomotor activity, thus producing a temporary mixed state.

Interpretation of the Psychosis.

Manic-depressive psychosis is the type of extraversion reaction. That is, the patients instead of turning within themselves (introversion) try to escape their difficulties (conflict) by a "flight into reality." This flight into reality is the manic phase of the psychosis with its flight of ideas, distractibility and increased psychomotor activity during which the patient seems to be almost at the mercy of his environment having his attention diverted by every passing stimulus. The great activity can be understood as a defense mechanism. The patient appears, by his constant activity to be covering every possible avenue of approach which might by any possibility touch his sore point (complex) and so he rushes wildly from this possible source of danger to that, meanwhile keeping up a stream of diverting activities. He is at once running away

from his conflict—into reality—and trying to adequately defend every possible approach. On the other hand a study of the manic productions will disclose the fact that they refer to, they reanimate, so to speak, longed for situations of the past, the memories for which have been repressed. So in this sense the mania is an ambivalent reaction, rushing into reality on the one hand but on the other developing, under the cloak of the hyperactivity and flight of ideas a wishfulfilling drama in which the forbidden thoughts come to expression.

Diagrammatic representation of twenty years of a patient's life to illustrate the recurrent tendency and the irregular periodicity of the relapses of manic-depressive insanity.



Courtesy of the *Journal of Mental Science*, Article by George M. Robertson: The Prevention of Insanity. October, 1926.

The manic-depressive psychosis is seen therefore not to be characterized so much by the nature of the difficulty (conflict) with which the patient has to deal as by the way in which he deals with it. This method I have described as a "flight into reality" which is the characteristic of the manic phase, while the failure to deal adequately with the difficulty is manifested by the depression of the depressive phase. In the depression the defenses have broken down and the patient is overwhelmed by a sense of his moral turpitude (self-accusatory delusions). FREUD[4] has shown that these self-reproaches ill fit the patient's self but that with slight modifications they can be seen to fit another who either is or has been a love object of the patient. Now love involves the mechanism of identification, we strive to be like those we love. Here is

[4] S. Freud: Trauer und Melancholie. Int. Zeitschr. f. Ärztlich. Psychoan. IV Jahrgang, Heft 6.

the key to the riddle. The patient has suffered some injury from his love object, his love has not been returned or it has suffered disappointment and disillusionment and the patient, in his feelings, turns with reproach upon that aspect of himself which he has identified with the love object. In other words he treats himself as object and so are explained the self-accusations, self-mutilations and suicide.

The alteration of the manic and the depressive phases, the *affect fluctuation* or the *diathetic proportion* as KRETSCHMER puts it, have been likened to the work of the mythological Sisyphus. The laborious pushing of the stone up the hill is analogous to the work of the manic in warding off all approaches to his complex. The failure just as he is about to reach the summit, to succeed, is likened to the depressive phase with the failure of the work of defense and the consciousness of sin and the feeling of inferiority.

In a recent publication[5] FREUD offers the following hypothesis to explain the manic-depressive reaction: "* * * in cases of mania the ego and the ego ideal have fused together, so that the person, in a mood of triumph and self-satisfaction, disturbed by no self-criticism, can enjoy the abolition of his inhibitions, his feelings of consideration for others, and his self-reproaches. It is not so obvious, but nevertheless very probable, that the misery of the melancholic is the expression of a sharp conflict between the two faculties of his ego, a conflict in which the ideal, in an excess of sensitiveness, relentlessly exhibits its condemnation of the ego in delusions of inferiority and in self-depreciation."

ABRAHAM[5a] believed that repression takes place in this psychosis at the oral-sadistic stage (the refusal of food is an outstanding oral-zone symptom as are probably also the taking of poison and the cutting of the throat). The repression of sadism produces the self-reproach, depression, and anxiety. The depressed patient, unable to love and forced to hate, rationalizes in accordance with this formula "people do not love me, they hate me because of my inborn defects. Therefore I am unhappy and depressed." The stronger the sadistic impulses that are repressed the greater the feeling of guilt, until the patients feel that they are responsible for all of the sin and suffering in the world. In a sense this is a

[5] Freud: Group Psychology and the Analysis of the Ego.
[5a] Selected Papers of Karl Abraham.

grandiose idea of power, a megalomania. The sadistic tendencies, instead of being released upon the external world, are directed against the patient himself, who then derives a masochistic pleasure from his own suffering.

The benign character of the manic-depressive group of psychoses is explained because of their extraverted mechanism. Reality is the normal direction for the libido and because the direction is normal they more readily result in recovery.

Inasmuch as we are dealing in this group only with a special form of mechanism it is well to voice a word of caution about considering manic-depressive psychosis as a cut and dried disease concept. It is not; it represents only a special way of reacting and therefore we may and actually do find the manic-depressive type of reaction not only among normal persons but in association with other disease types—paresis.

Even in dementia precox the mechanisms of which are diametrically opposed (introversion) we may see quite typical transient manic episodes as the patient for the time being resorts to an extraversion mechanism.

And finally the defenses even in the midst of the manic phase are never quite sufficient and the repressed complexs are constantly finding weak spots through which they gain expression in the delusion formations (delusions of great power, wealth and happiness) in the particular form of activity (destructiveness; symbolic needle work and other creations; decoration, sometimes with the aid of feces, etc.) or in the transient reactions (words; phrases; hallucinatory voices) of the excitement. These productions are naturally quite like those found in other psychoses, particularly the introverted group (precox) and lead often to a confusion in diagnosis. The important thing is not to give a name but to understand the mechanism—what the patient is trying to accomplish.

Course and Prognosis.—The individual attacks vary in duration from a few days to several months, some attacks, however, being greatly prolonged. Recovery from the single attack is the rule, while the likelihood of subsequent attacks is quite certain. The prognosis for this disease is therefore bad as to ultimate recovery, although good for the separate attacks. Sudden onset is, on the whole, rather indicative of as sudden recovery and future attacks may be presumed to follow, in general, the course

of the past ones. As the years go by the attacks are apt to recur with greater frequency, the quiescent periods becoming shorter and shorter, though even after a great number there may be no evidences of mental deterioration unless, perchance, arteriosclerosis or the reduction of senescence has supervened meantime. The possibility of greatly prolonged attacks should not be forgotten while some authors speak not only of chronic states but of the possibility of deterioration.

There has been some discussion as to whether recovery from the separate attacks is a true restitution to mental health or whether the patient does not, as a matter of fact, show symptoms of the disorder in the intervals. Contrary views are held on this point. It should be recalled, in this connection, that recent research has indicated that this group of disorders develops in characters which have a manic-depressive coloring, that is, which show tendencies to depressions and excitements not sufficiently well marked to be called disease. Recovery certainly takes place so far as all practical issues are concerned. The patient has been able to push the conflict into the unconscious, and thus attains a capacity to do useful work.

Differential Diagnosis.—The manic stage may be confused with the excitement of dementia precox. The presence of signs of introversion in this latter disease, however, will usually make the diagnosis, though there are cases that are extremely difficult to differentiate and considerable time must be allowed to elapse before a diagnosis can be made.

The depressive stage is more apt to be confounded with the melancholia of the involutional period: particularly is this true of the mixed state of agitated depression.

The excited and stuporous states of catatonia may be confounded. The excitement of catatonia does not show typical flight—the degree of incoherence is often out of all proportion to the grade of excitement. The stupor of catatonia is often associated with negativism and muscular tension, while the face is either expressionless or perhaps grimacing. In depressive stupor the facial expression often shows the great mental suffering of profound depression.

The whole question of the differentiation of some cases of manic-depressive psychosis from dementia precox involves the greatest nicety of observation, interpretation, and judgment.

LANGE,[6] in a recent study of one hundred carefully selected cases of manic excitement, states that the number of cases of mania entirely free from catatonic symptoms is remarkably small, although he extends the meaning of catatonia to include, besides the psychomotor symptoms, the absence of affectivity, the schizophrenic disturbances of association and hallucinations. The catatonic phenomena are especially frequent in youth and advanced age. Symptoms suspiciously schizophrenic, in the form of leveled affects, monotony, and stereotypies, paranoid elaborations, excitements, disorders of the sensorium, and delirious conditions, are especially frequent in advanced age. The schizophrenic symptoms always made their appearance in conditions of clouding of consciousness and hence are attributed to this condition. When, for example, there is clouding of consciousness in symptomatic psychoses, catatonic psychomotor symptoms are more frequent. With clear consciousness the catatonic features constitute a very unfavorable sign. Clouding of consciousness is given a very broad meaning by the author, including many heterogeneous elements (sleep, dreams, dream states, "peculiar stupefactions," narrowing of the field of consciousness).

The great general principle of diagnosis in this disease, aside from the presence of the classical symptoms, is the occurrence of repeated attacks. A history of previous attacks, perhaps too mild to be considered as such by the family, will almost always be brought out by careful questioning. Next in importance to the history of repeated attacks is the history of attacks of both manic and depressive character, often showing at their onset or termination a short period of a mixed state.

It must not be forgotten, however, that all acute psychoses tend to recur. The individual once having suffered from mental disease has thereby a diminished resistance which often shows itself in future attacks.

Extra-neural Pathology.—Post-mortem examinations of those who have presented the manic-depressive reaction type frequently revealed various associated pathologic conditions of the

[6] Lange, J.: Katatonische Erscheinungen im Rahmen manischer Erkrankungen. Monogr. a. d. Gesamtgeb. d. Neurol. u. Psychiatrie. Hrsg. v. O. Foerster und K. Wilmanns, H. 31. Berlin, Julius Springer, 1922.

nervous system and of the other organs, but in the past the field of somatic pathology has failed to contribute to the knowledge of the organism as a whole when involved in the manic-depressive type of reaction. This failure is due both to the lack of systematic investigations in this field and to the fact that the anatomo-pathologic material is difficult to interpret in this connection, since the psychosis is so often a prolonged periodic process extending over many years; thus the original tissue organization may be altered by senility and intercurrent disease, as well as by the lethal lesion.

Owing to the prolonged and periodic character of the condition, suitable material available for post-mortem study is greatly limited; however, a number of clinically certain cases have been thoroughly studied, and from these one may attempt to draw some general conclusions as to the somatic construction of the manic-depressive type of individual. Lewis[7] has found:

1. It is a well-known clinical observation that these patients are very prone to develop surface infections, particularly during the excited phases. Microscopic studies on the various tissues have emphasized the fact that numerous infections have occurred in the internal organs of the body during the life of the individual. Small contracted healed areas are found far more frequently than in the bodies of those affected by any other type of psychosis, and although they are not limited to any particular type of tissue, are found more often in the thyroid, liver, lungs, kidneys, and pancreas.

This finding would indicate that the manic-depressive type of individual is not only more prone to infections (lowered local resistance) but at the same time demonstrates tremendous reactive possibilities (powerful combined or total reaction), since the organism as a whole walls off and destroys the invaders and heals up the disorganized tissue. However, the final outcome of 40 per cent. of manic-depressive constitutions is death from some form of acute septicemia, such as that from pyelonephritis, acute suppurative cholecystitis, and streptococcic septicemia, while only 10 per cent. of cases studied by Lewis died of pulmonary tuberculosis.

2. The circulatory system in general is large and compensates easily for extra strain; however, death from circulatory accident,

[7] St. Elizabeths Hospital material.

such as cerebral thrombosis, subdural hematomas, cerebral hemorrhages, and cardiac decompensation, occurs in about 50 per cent. of cases.

In this respect the soma of the manic-depressive shows many features in common with the paranoid types (see p. 232), which is to be expected, since powerful compensatory psychologic features dominate the clinical picture of both disorders.

Generalized arteriosclerosis with associated tendencies to infarction of various organs, kidney disorders, venous thromboses, and miliary hemorrhages, is more often encountered in the aged manic-depressive than in the average senile.

3. The endocrine glands exhibit peculiar combinations of atrophy, hypertrophy, and hyperplasia.

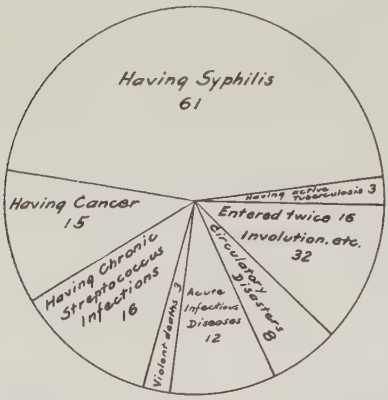
In a number of cases the pituitary has been found grossly atrophied, occasionally to an extreme degree. Microscopic examination of these glands discloses a tendency on the part of individual cell groups to compensate by hyperplasia, and in a few instances typical local adenomata have developed in the anterior lobe. The posterior lobe is usually in a state of fibrous atrophy.

The thyroids exhibit the scars (frequently calcified) of numerous previous infections, which have probably developed secondarily from throat or tonsillar infection, etc. In some cases there is fibrous atrophy of the gland as a whole, but more often there are attempts on the part of the epithelial cells to reconstruct the parenchyma, and thus secondary hypertrophies arise. Miliary hemorrhages may be numerous through the interacinal stroma.

The adrenals generally exhibit cortical hyperplasias, but not to the remarkable degree noted in the paranoid types; however, the tendency to general atrophy of both cortex and medulla, and moderate local attempts to reconstruct on the part of the cortex, are constant findings. Miliary hemorrhages into the substance of the adrenals are often found in addition to the other developments.

The gonads from the standpoint of the group are very well preserved; even in senile cases there may be less atrophy than expected; however, the testes of an occasional case may show some diffuse atrophy of both tubules and interstitial cells and reduction in the spermatogenic functions, while in other instances complete focal destructions have occurred either from vascular involvement or previous infectious invasions.

The accompanying figure shows the results of autopsies by FREEMAN of cases[8] with cycloid type of reaction.



Disease incidence and causes of death in cycloid group. Male and female. 134 cases.

Treatment.—Many of the cases of hypomania require sequestration because of their tendency to commit alcoholic and sexual excesses and to make foolish financial ventures.

The more excited cases have to be guarded particularly against exhaustion. To this end great care should be taken to see that sufficient food is taken and prompt recourse had to artificial feeding if necessary. For the insomnia hot milk at bedtime, hydrotherapy (hot pack or bath) and hypnotics should be tried in the order named:—sulfonal, trional, veronal, chloralimid—while chloral and bromides, unless indicated for some special reason, should be avoided. For the motor restlessness watch the patient and keep him from injuring himself. Resort may be had to the wet pack or the continuous bath. If these means fail hyoscyamine may be used hypodermically. Three to five minims of the centesimal solution of the amorphous sulphate of hyoscyamine with an equal quantity of Magendie's solution usually works nicely. The patient should always be kept under close observation after such an injection and as the effects are quite disagreeable and often continue during the next day it should not be repeated unless absolutely necessary. The judicious use of hydrotherapy, however, will usually make it unnecessary to resort to restraint either mechanical or chemical. For the exhaustion, hypodermoclysis is often valuable.

In the depressed cases care should be exercised to see that sufficient food is taken, the emunctories watched, and the patient kept under continuous observation since suicidal trends are almost invariably present.

[8] Saint Elizabeths Hospital material.

Prophylaxis.—It is important to sufficiently analyze these cases to determine the conditions which led to the breakdown so that when the patient recovers appropriate steps may be taken to protect him from a recurrence of these same conditions. The conditions should be removed or the patient removed from them or if they are inevitable, such as incompatible home relations, the patient should be advised how to attempt to adjust to them. The interval between attacks is the appropriate time for essaying a psychoanalytic approach to the patient's difficulties.

CHAPTER X.

Paresis.

General Characterization.—General paresis is an organic disease of the brain of an inflammatory and degenerative nature, involving in the main the leptomeninges and the cortex and manifesting itself by certain physical symptoms and a progressive mental deterioration upon which may be engrafted various other symptoms of mental disturbance.

Etiology.—The etiology of paresis has long been a matter of contention but the opinion that syphilis is a necessary pre-condition to the development of the disease has been held for a considerable time and is at the present time a settled issue. The serological findings are positive for syphilis and the treponema pallidum has been found in the paretic cortex. Paresis, in other words, is a form of syphilis. The terms meta- and para-syphilis are in a sense misnomers. It would be better perhaps to take the key from the pathology and designate it as a parenchymatous syphilis,[1] although meninges and vessels are involved as well as the cortex still it is the involvement of the cortical parenchyma which makes the disease so malignant and so resistive to treatment.

While paresis is a form of neurosyphilis the fact still remains unexplained, although it has been a subject of controversy for many years, why only a very small percentage of syphilitics develop paresis.[1a] There are three main theories to account for this. The oldest theory, and one still held in some quarters, is that there are different strains of spirochete and that paresis is due to a particular neurotropic strain. This hypothesis was supported by showing that paresis was more prone to develop from certain sources of infection, for example, by tracing several cases to one prostitute. The most recent theory is that individual sus-

[1] Jelliffe and White: Diseases of the Nervous System, 4th Ed., 1923.

[1a] For a discussion of the many problems presented by paresis see E. Kraepelin: The Problems Presented by General Paresis. Jour. Nerv. and Ment. Dis., Vol. 63, No. 3, March, 1926.

ceptibility varies, some individuals being more resistant to the infection than others. This is the hypothesis advocated by those who are now treating paresis by inoculation with malaria (see p. 195) on the theory that the production of malarial immune bodies also activates the protective mechanism against syphilis. And finally there is the theory, advanced by BOLTON[2] some years ago, that paresis only occurs in those who, by reason of a defective cortical organization, would have become demented in any event. The process is rendered more acute and rapid by the specific infection.

Bearing upon this latter theory of individual differences in susceptibility is the fact of the marked disproportion in the distribution of paresis between the two sexes. In general it is stated that the proportion is three males to one female. Of 16,176 first admissions to State Hospitals[3] there were 1226 male paretics as against 288 female paretics. In a recent study MOORE[4] comes to the conclusion that the difference is dependent upon the fundamental biological distinction between the sexes, namely, childbearing, and finds that the proportion of paresis in sterile women is about the same as in men and that it is only in those who have borne children that it is so much lower. This would account for the mildness of the signs of syphilis in women who are infected at the time they are impregnated and also for the rarity of paresis in the wives of paretics.

Another long discussed subject in relation to paresis is the effect of trauma, whether head injuries, or other trauma are etiological factors. Those who take the negative of this proposition point out how frequently the trauma is itself an evidence of the disease in that it can be traced to poor judgment or to muscular incoördination. OSNATO[5] in a careful study comes to the conclusion, however, that cranio-cerebral trauma may be the

[2] Joseph Shaw Bolton: The Brain in Health and Disease. Published by Edwin Arnold, London, 1914.

[3] H. M. Pollock and E. M. Furbush. Mental Diseases in Twelve States, 1919.

[4] J. E. Moore: Studies in Asymptomatic Neurosyphilis. III. The Apparent Influence of Pregnancy on the Incidence of Neurosyphilis in Women. Arch. Internal Med., Nov. 15, 1922.

[5] M. Osnato: Trauma and Other Non-Luetic Influences in Paresis. Jour. Nerv. and Ment. Dis., August, 1920.

precipitating factor in causing paresis to develop in a syphilitic individual. He believes it operates by changing the permeability of the blood vessels allowing the spirochetes and their toxins access to the brain tissue. Trauma may not only acutely precipitate paresis, he believes, but may adversely influence the already developed disease. He thinks also that other toxic substances such as the toxins of influenza, infections, alcohol and ether may act in a manner similar to trauma. The question of emotional stress and bodily and mental fatigue is still another question but it does seem that many cases do develop contemporaneously with such stresses although it is impossible to establish any other than a temporal relationship between them and the development of paresis.

General Considerations.—Protean as are the manifestations of this disease, it is not strange that it should often go unrecognized during its early stages, yet there is probably no disease in which a failure to make a correct diagnosis is fraught with such manifest dangers, not only to the patient but to his family, his friends, or in fact to any one who, not recognizing his condition, may be induced, for instance, to enter into business relations with him. It is during this early period that those unfortunate occurrences are so frequent which might have been prevented if the true condition of the patient had been recognized.

Manifesting itself in its incipiency by symptoms of defective intelligence, lack of judgment, memory defects, and moral obtuseness, we frequently see the most pitiful of pictures—a previously respected citizen, father of a family, occupying an enviable social position, become at the height of his career an ardent worshiper at the shrines of Venus and Bacchus. Friends and relatives see nothing in these manifestations but the outcropping of original sin and are distracted by their inability to stay the career of drunkenness and vice upon which their erstwhile respected relative has entered. How many heartaches, how many pangs of anguish, how many blushes of shame could be spared the wife and children of such a man if the family physician did but recognize in these occurrences the symptoms of the onset of a mental disease and advise them what course to pursue!

An acute attack of maniacal excitement, the delirium of an acute toxic psychosis, are early recognized and even the slowly developing depression of the melancholic, or the gradual change

of character of the paranoiac, is usually appreciated before any serious harm can come. But here we have a disease, afflicting one when at the very zenith of his physical and mental powers, insidious in its onset yet capable of so changing the character in a few weeks that the previously honest, upright, moral, truth-loving, sober citizen becomes the votary of every form of vice, sinks to the depths of drunkenness and debauchery, and may even stain his hands in blood. But this is not the worst; all these things would ultimately find their explanation when the disease that was responsible for them came finally to be recognized and in the light of its diagnosis they would be excused. But it so happens that such a man as I have pictured is generally the guardian of the family exchequer. When this is the case it almost invariably happens that he wastes considerable amounts of money in his debauchery, becomes involved in unfortunate and ill-advised speculations, often at the solicitation of "sharpers" who only too well appreciate his poor judgment and gullibility—and finally, when he has succeeded in hopelessly entangling his business affairs and plunging himself into debt, he is committed to an institution and his family only then come to a realization that they are penniless. The pity of it all is that it might have been prevented.

Diagram to illustrate the number of years that elapsed after infection by syphilis before general paralysis developed in 610 patients, with the number of cases each year and the approximate percentage of the total number each year. Compiled from Kraepelin, Junius and Arndt, and Fournier.

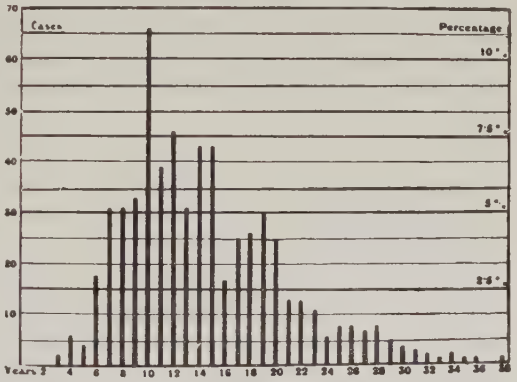


FIG. 18.

Courtesy of the *Journal of Mental Science*. Article by George M. Robertson: The Prevention of Insanity. October, 1926.

Before taking up the description of this disease, it is desirable

to correct two pretty generally diffused misapprehensions regarding it. First, the diagnosis of paresis does not rest solely upon the mental symptoms. Paresis is a gross organic syphilitic disease of the brain and its diagnosis must rest largely upon an appreciation of the physical signs which these changes bring about, particularly in the fields of motor disturbance and serology. Second, grandiose delusions of great wealth, power and strength are in no wise a necessary part of the symptom picture, and while the so-called classical type of paresis does present such delusions this type is becoming relatively less frequent as the other forms are being oftener recognized.

For convenience of description paresis may be arbitrarily divided into three periods. First, the prodromal period; second, the period of the fully developed disease; and third, the terminal period.

First Period.

Physical Symptoms.—Of these by far the most important are the oculo-motor and tendon reflex disturbances. In the oculomotor phenomena the pupillary abnormalities are most important. The loss of the *light reflex* with retention of the reaction to accommodation, the Argyll-Robertson pupil, is one of the most valuable diagnostic signs of beginning paresis, in the absence of tabes, as it frequently occurs very early. This symptom is present in 45 per cent. of cases. A sluggish reaction to light, probably the beginning stage of the Argyll-Robertson pupil, is found in 28.3 per cent., while a normal light reflex is present in 26.3 per cent. It is generally conceded, however, that the Argyll-Robertson *pupil* is much more common in the tabetic type of paresis—84 per cent. (Bumke).[6]

In this connection the observations of Marandon de Montyel,[7] published in June, 1905, are interesting.

This author has made observations of the light reflex upon 140 paretics from the beginning of the disease until death. Fifty of the patients died in the first stage, 36 in the second, and 54 in the third. Of the 54 who lived through the entire evolution of

[6] Bumke: Die Pupillenstörungen bei Geistes und Nervenkrankheiten. Verlag von Gustav Fischer in Jena, 1904.

[7] E. Marandon de Montyel: Le réflexe lumineux dans la paralysie générale, Arch. d. Neurologie, Juin, 1905.

the disease every one showed some abnormality at one time or another. Of the 140 patients, the reflex was always normal in 24 per cent., always abnormal in 17 per cent., and alternated in 58 per cent. Taken by stages, in the first stage, 42 per cent. were always normal; the second stage, 29 per cent., and in the third, 3 per cent. Those always abnormal: first stage, 24 per cent.; second, 34 per cent., and third, 85 per cent. Those which alternated: first stage, 32 per cent.; second, 35 per cent., and third, 11 per cent. In the first stage 6 per cent. were exaggerated in both eyes; 10 per cent. showed diminution and abolition of the reflex in one eye.

The author claims that this is the first complete series of cases and that the conclusions are much more reliable than those based upon a much larger number of isolated observations taken at random in the disease.

In examining for these conditions care should be taken that movements of accommodation are not mistaken for reactions to light by having the patient fix the gaze upon some object, the pupils should be equally illuminated, and the light should not be too bright, as under these circumstances a sluggish reaction might be masked.

Earlier still than loss of the direct light reflex, Berkley[8] believes, can often be found loss of the consensual light reflex. The *consensual reflex* consists in the dilatation and contraction of the pupil of one eye when the other is shaded or exposed to direct light. It is quite possible, I believe, that the loss of this reflex is an early stage in the development of the Arygll-Robertson pupil and should always be tested for. This condition is usually found when a sluggish light reflex is present. Lewis[9] claims that a still earlier symptom than any of these is the loss of the *sympathetic reflex* (the dilatation of the pupil on stimulating the skin of the neck). Sixty-three and six-tenths per cent. of his cases showed this symptom, several of them with light and consensual reflexes.

. Of the tendon reflexes the only one I will here consider is the knee-jerk. This may be normal, exaggerated, diminished or lost on one or both sides. The exaggerated reflex is most common,

[8] Berkley, Henry J.: A Treatise on Mental Diseases. New York, D. Appleton & Co., 1900.

[9] Lewis, W. Bevan: A Text-Book of Mental Diseases. London, 1899.

on one or both sides. The exaggerated reflex is most common, but I agree with SOMMER[10] in his statement that although this is so the absence of the knee-jerk is of much greater diagnostic importance, as there are many more causes for its exaggeration other than paresis than there are for its abolition. This sign, also, of course, depends for its importance upon the elimination of other possible etiological factors, especially tabes.

Mental Symptoms.—The mental symptoms of the prodromal period are often not appreciated at the time of their occurrence but only after the disease has been recognized in its fully developed state and then in looking back over the past few months various occurrences which were then not appreciated at their true value are seen in their real relation to the development of the disease.

In general, these mental symptoms are symptoms of a gradual change of character and of progressively failing mental and physical powers. There is a beginning failure on the part of the patient to continuously apply himself to his work and mental application of any sort soon brings on fatigue; memory is not quite so good and business engagements and the details of business are forgotten, the morale of the patient is quite apt to undergo alteration, and he may go to excess in drinking and associate with lewd women oftentimes openly, without shame, which is of course of most significance if contrary to his previous habits and ideals. In addition to these symptoms he shows poor judgment in his business relations and may not only risk large sums of money on hare-brained schemes, but may enter into all sorts of financial relations with persons and preserve no records to show what they were.

The appearance of the patient may also indicate the beginning of mental reduction; he is less careful about his personal appearance, wears soiled linen, has forgotten to button his vest, or to put on a necktie; his clothes are shabby and soiled, and in general the degradation toward which his condition is tending has begun to show itself.

The mental symptoms, as already indicated, are symptoms of dementia, gradual, progressive, and more or less uniform failure of the mental powers upon which, it is true, may be engrafted a variety of kaleidoscopic psychotic pictures, but which inevitably

[10] Sommer, Robert: Diagnostik der Geisteskrankheiten. Berlin und Wein, 1901.

and of necessity modify these in a way more or less characteristic of the underlying defect. This dementia manifests itself by failure of memory, defective judgment, inability to apply the mind consecutively for any length of time, and failure of the moral sense. The picture, from a mental viewpoint, is then one of a gradually deepening dementia, correlated with organic changes in the cerebral cortex, a true organic dementia. If upon this basis of organic dementia there be erected mayhap symptoms of excitement or depression, delusions of a hypochondriacal or grandiose nature, multiform hallucinations and illusions, a true delirium, these symptoms may properly be considered as unessential, accidental accompaniments. Thus a distinction is made between *paralytic dementia,* the direct result of the destruction of brain tissue and the fundamental symptom on the mental side of the disease, and *paralytic psychosis,* which consists of the various other symptoms of mental disturbance which may be engrafted on the demented background.

Developing as they do, however, upon a groundwork of dementia, we would expect them to manifest themselves differently than would be the case if their foundation had been originally an unimpaired mind. This we find preëminently to be the case. The grandiose paretic is not content with possessing a few paltry thousands but reckons his fortune by quintillions; he has solid gold carriages, harnesses set in precious stones and offers me each morning a fleet of ships to go around the world with, a million dollars and a thousand wives. The depressed paretic has caused the death of untold myriads of human beings, the hypochondriacal has no stomach, no bowels, no brains, etc. The delusions are marked by an absurdity which can only result from the defective judgment and impaired intelligence of dementia.

These advanced conditions of delusional states are not usually found in this period of the disease but belong typically to the next, the period of full development. They are quoted here merely to illustrate fully what is meant by the statement that the dementia of paresis is the underlying and essential symptom. The demented type, without marked delusions or sensory falsifications, is the truly typical variety of the disease and the dementia the basal element of all forms.

This dementia may, however, not be apparent; it may be necessary to seek for its manifestations. In the very early stages the

outward symptoms may be those of irritability and an untoward restlessness which may exhibit itself in many ways, as, for instance, useless business activity, fits of violent rage over trivial annoyances, and slight lapses of memory. If the reasons for all these things be inquired into, however, they will be found inadequate, often puerile.

We often find in this stage of the disease the beginnings of those speech defects which later are to become so characteristic. At this time there may be only a suspicion of the true paretic speech in the slight hesitation and occasional almost unnoticeable defect in a single word. Such patients often say test words, such as hippopotamus, communicability, circumstantiality, perambulator, quite correctly. It would seem that the defect is as yet so slight that the mere effort as the result of conscious attention is sufficient to overcome it. In such cases the test words should be combined into sentences to catch the patient unawares, as it were. I had a patient who said test words and phrases perfectly, yet there was a noticeable defect in an occasional word in her ordinary conversation. If she were asked, however, to repeat this word it was done promptly and correctly. If the speech defect is slightly more marked we may notice a slight tremor about the muscles of the mouth which is brought out by a difficult word or by emotional excitement. We should be careful in interpreting this tremor, however, as we find it present in many conditions other than paresis.

Second Period.

Physical Symptoms.—The symptoms already described become more marked. The tremor especially is more in evidence and is of the fibrillary variety; the muscular weakness is noticeable and is in marked contrast to the well-nourished appearance of the patient, who quite characteristically takes on flesh in this stage; the Romberg symptom becomes much more marked, so that the patient may fall when the eyes are shut; the walk is more ataxic—especially in those cases that have begun with tabetic symptoms—the *tabetic variety*. Certain cases in which focal symptoms are clinically pronounced are referred to as *Lissauer's type*.

Characteristic of paresis, and occasionally but not frequently occurring early in its course, are the so-called *paretic seizures* which arbitrarily may be said to mark the beginning of the second

stage. These may vary in severity and character from light syncopal attacks with pallor and temporary prostration to severe apoplectiform and epileptiform crises. The epileptiform attacks may be of the petit mal or grand mal type and without the history may be indistinguishable from true epilepsy.

These *epileptiform seizures* may be severe or slight and may involve any portion of the musculature and be accompanied by loss of consciousness or not. Occasionally a seizure is the first symptom to attract attention, and if the patient is alcoholic, it may under such circumstances be extremely difficult to make a diagnosis from alcoholic epilepsy. In general, the seizures last longer than the epileptic convulsion, and occurring in a person thirty to forty years of age without previous history of epilepsy or alcoholism, should at once suggest paresis. They are less apt to be associated with loss of consciousness. Occasionally these seizures last for days, the muscular twitching spreading from one part of the body to another, with clouding of consciousness but not complete unconsciousness all of the time. There may also be conjugate deviation of the eyes and in many cases a marked rise of temperature. Under such circumstances pneumonia is particularly to be feared as a fatal intercurrent disease.

The *apoplectiform seizures* resemble in every way true apoplexy but the resulting paralysis is less apt to be permanent; in fact, it may entirely disappear in a most remarkable fashion in two or three days. It must not be forgotten that the paretic may, of course, have a frank apoplectic attack with resulting permanent paralysis. Transitory muscular paralyses, not infrequently of the extrinsic eye muscles, may, however, occur apart from these seizures. They are of short duration and clear up rapidly.

After a seizure it is usual to find that the patient is somewhat more demented. This is a distinguishing feature from epilepsy.

The cause of these seizures cannot be satisfactorily explained, but they are perhaps due to local conditions in the brain of both toxicity and edema. They may be explained as a result of the extensive destructive process going on and the clogging of the lymph channels, so that the waste products cannot be removed readily.

Mental Symptoms.—The mental symptoms of this period are merely more exaggerated expressions of those already described. The symptoms of mental reduction—dementia—become more and

more prominent. Memory fails utterly, so that the patient may not recall the location of his room that he has lived in for weeks; spatial, temporal and personal disorientation appear; a true occupation delirium may develop, the patient being often found carrying on his accustomed business operations oblivious of his surroundings; the simplest mental operations, such as adding a column of figures, have become impossible; the emotional deterioration is prominent, the patient pays no attention to his family and may not be affected even by the death of one of them. The speech disturbance which has been in evidence usually for some time becomes much more prominent. Syllables are reduplicated, words are left out or stumbled over, the voice is harsh and lacking in expression. The writing presents similar defects and although sometimes the first few words are fairly done it soon becomes almost absolutely illegible, a mass of scrolls, blots, erasures, or the patient may fail absolutely after several efforts to write at all.

FIGURE 3. An elated type of patient with general paresis in a playful mood. Extreme dilapidation has not yet occurred and extraverted tendencies are in the foreground.

In this fully developed stage the disease occurs in four types, viz., the demented, excited, agitated, and depressed.

The *demented* type, as has been explained, constitutes the typical variety of the disease and is the type which has been thus far described.

The *excited* or *expansive* type is marked by more active symptoms and typically by *grandiose delusions*. This constitutes the so-called *classical paralysis*. These ideas of grandeur are marked, as already explained, by their absurd character, the patients believing themselves to have great strength, they can lift enormous weights, have fabulous wealth, so much money in fact that ordinary words are insufficient to express the amount and new words have to be invented for that purpose, possess thousands of carriages with trimmings of gold and precious stones, fleets of vessels to take friends on tours about the world, write checks for

millions and distribute them indiscriminately. One patient was importing carloads of bloodhounds, another has invented a special kind of axle-grease and offers to give thousands of carloads to anyone who will introduce it to the railroads and called to see the President to get him to have a law enacted so that he could draw upon the Treasury to finance his scheme. With these delusional symptoms there goes a great deal of motor unrest, the patient constantly busies himself drawing up schemes, writing checks, talking, etc., and suffers from insomnia.

The *agitated* type, sometimes called when extreme *galloping paresis,* is a more aggravated form of the excited type. In this condition the motor restlessness and insomnia is extreme, there supervenes marked emaciation, the delusions, while of the expansive type, are rapidly changeable and there is a marked flight of ideas, with considerable clouding of consciousness. Some temperature usually coexists and the case runs a rapidly fatal course from exhaustion. All grades of excitement may, of course, occur between the classical type on the one hand and the extreme form of the agitated type—galloping paresis—on the other.

The *depressed* type is often at first mistaken for melancholia, and this mistake is liable to be made unless the physical symptoms are borne in mind. The depression may take the form of *depressive melancholia* with retardation or of *affective melancholia* with anxiety and apprehension. Delusions are frequent and often take the form of *hypochondriacal ideas*—the bowels are stopped up, the blood does not circulate, and the like, or *ideas of negation,* the patient denying that he has a stomach, brain, soul, head, or even claiming that he is dead.

Sometimes states of depression and excitement alternate, so producing a *circular paralytic psychosis.*

Delusions of a persecutory character may give a *paranoid type* to the symptom-complex, while in some cases the *Korsakow syndrome* is present.

The following brief summaries of cases illustrate some of these points. The Wassermann reactions and the cell count of the cerebrospinal fluid should be noted.

This case shows a long prodromal period with probably a seizure very early in the history. He was first depressed and paranoid,

then excited, and then all these manifestations subsided and he became quiet and showed simply the dementia.

Male, age 41; first evidence of any trouble began two years ago, when patient suffered from severe pains in both legs; they were very acute and severe in nature. In March, 1911, he had a vomiting spell, following what is believed to have been a slight convulsion. After this he became peculiar. Following this, for certain irregularities, he was discharged by his employers and subsequently sent to the Washington Asylum Hospital where he remained for two weeks, when he was taken home by his family on a six months' trial. During this time he improved. On his return to Washington, being unable to obtain employment, he became very much depressed, thought that people were against him, believing that he was perfectly well and able to work. His mental condition became such that his family had him admitted to the Laurel Sanitarium, where he remained for five weeks. Shortly before admission to this Hospital there was some sort of an acute outbreak, during which he had several convulsions and he became unmanageable, refused to remain in bed and on this account was brought to this Hospital.

Physical condition good. Pupils regular, equal, no reaction to light either directly or consensually but they do react to accommodation. Slight nystagmus in each eye on external rotation. No ocular pareses. Tremors of tongue and extended fingers. Knee reflexes exaggerated, right patellar decreased, left absent. No ankle clonus.

On admission he was quite disturbed, especially at night. He threatened to fight the attendants when any attempt to care for him was made. He was very unsteady on his feet, unable to care for himself. It was impossible to get any history from him during early days of his residence here. Irritability was very marked and he would often curse and refuse to answer questions. No insight; no definite hallucinations or delusions. Two months later (January 15, '12) it was noted that he was becoming more quiet, never complained, and his only request was to be discharged. No insight.

Since that time patient has greatly improved; he is now quiet and orderly, oriented in all fields, memory shows no gross impairment, but he has no insight into his condition. Wassermann with blood serum double positive. With the spinal fluid double positive. Protein content increased, 42 cells per c.mm.

This patient showed the typical grandiose delusions, then a change to depression with a paranoid trend, and the occurrence of seizures.

Admitted July 25, 1911, age 50, married, commissary steward of the U. S. Navy. Family history unimportant. Early life uneventful so far as known. Supposed syphilitic infection in 1902. First admitted to the sick list on June 28, 1911. For several months after this it was noted that

he was rather boastful. Subsequently very marked grandiose tendencies appeared, he was the Kaiser, the President, head of the Navy, etc., he ordered many automobiles and large quantities of diamonds. This condition continued until his admission to this hospital at which time he was exalted, constantly going about the ward, continually talking and at times singing for short intervals. He quickly obeyed any requests made of him and followed all directions given him. Attention was easily gained but not well held. There were many grandiose delusions concerning his own importance; he was Emperor of Germany, Columbus, DeSoto, etc., in fact anything which was suggested to him, he discovered the world, other patients about him were his brothers who fought to liberate this country; he built this hospital, had an unlimited amount of money. He was decidedly euphoric, smiling and laughing most of the time; had no insight. Wassermann reaction with the blood serum was double positive, with the spinal fluid double positive. Protein content increased, cells 49 per c.mm.

For several months following his admission, there was no essential change in his condition, he continued active, euphoric and alert, was busy with something throughout the entire day, constantly moving about the ward, talking with other patients concerning his various grandiose delusions. In August there was a slight convulsive attack. Patient continued up and about the ward until about a month ago, when he became very decidedly depressed, numerous ideas of persecution were expressed, and there were auditory hallucinations, the voices calling him all sorts of unpleasant names and accusing him of various unseemly practices; he felt electricity running through his body, says his head is all dried up and there is nothing left of his body, what was once his body is nothing now but a machine. He says he has no more money, that what he talked about was all a delusion, that he is now poor and has no friends.

This patient is one of the simple dementing type.

Admitted from the District of Columbia, September 8, 1910, at the age of 28. Family history unimportant. During infancy and childhood patient suffered from "night terrors." Early life was spent in an orphan asylum. He has been employed in Washington as a stationary engineer since 1904. No history of venereal infection or alcoholism. Symptoms of the present illness date back to September, 1909, when his work became inefficient, memory poor, and irritability became prominent. He was discharged from his position in January, 1910, and has been unable to obtain employment since then. In April, 1910, the first speech defect became noticeable. In July, 1910, he was sent to the Washington Asylum Hospital, where he remained one month. He returned home but was restless, had a poor appetite and did not sleep well, so that after a few weeks he was again returned to the Washington Asylum Hospital, where he remained until his admission here. About three years ago it was learned that he had some sort of fainting spell, accompanied by unconsciousness.

On admission here he was only partially oriented, memory for past events fairly well preserved, but impaired for recent ones. Insight was

lacking, and he was more or less exalted. No hallucinations or delusions could be elicited. Speech slow and enunciation slurring.

Physically he was poorly nourished, marked tremor of lips and tongue was noted. Pupils normal. Tendon reflexes exaggerated.

Wassermann reaction with the blood serum positive, not determined in the spinal fluid. Protein content of the spinal fluid increased. Cells per c.mm. 44.

For several months after admission he was indifferent, quiet and apathetic, showing no essential change in his condition. In March, 1911, pupils showed absent light reaction and absent knee jerks. Within the past few months, he has shown a more evident deterioration, is somewhat enfeebled and quite irritable when questioned. Hallucinations and delusions have not been manifested. Convulsions have not occurred.

The following patient showed the typical grandiose delusions with great impairment.

Oiler in the United States Navy, was admitted on October 5, 1911, at the age of 40. He was first admitted to the sick list on the U. S. S. California, on May 29, 1911. It is stated that he had shown progressive mental deterioration for a year past. Speech was scanning and there was some hesitancy. He had become shiftless and careless in his work. No venereal history was elicited. On July 1, 1911, he was transferred to the Mendocino State Hospital, where he remained until his admission here. The history which he can give of his family and past life is quite unreliable. He denies venereal infection and alcoholism. Grandiose delusions were present—he was worth six million dollars, states that he has taken one thousand dollars' worth of medicine, that he had four wives and about two hundred and fifty children, claims that he knows everything about machinery, automobiles, has been to the moon a number of times in aeroplanes, he can carry a lot of moons on his aeroplanes, which can travel about ninety miles in fifteen minutes. His responses to the intelligence tests show marked deterioration. He was completely disoriented, memory greatly impaired and insight entirely lacking.

Physical examination shows tremors of the fingers, tongue and facial muscles. Both knee jerks are exaggerated. Coördination and station impaired. Pupillary light reaction absent.

Wassermann reaction with the blood serum double positive. No history of convulsions. Progress has been gradual since admission. Condition essentially unchanged.

This patient showed the association of a mild euphoria with a persecutory trend.

Admitted July 30, 1911, age 43; married. Family history and early life of the patient unimportant so far as known. No history of alcoholism, drug addiction or venereal infection. Symptoms of mental disorder were

exhibited for more than a month prior to admission, when he had pronounced delusions of grandeur and persecution, since then has developed ideas of a mildly persecutory type associated with delusional tendencies. He threatened to kill himself and others.

On admission he was quiet, answered questions promptly and relevantly, was approximately oriented. Close questioning made him extremely irritable; this persisted only transiently, when he again became quite happy and almost euphoric. In speaking or laughing there was noticed a slight lack of control of the muscles of expression and there was a decided overactivity of the muscles of the face. Test phrases were very much slurred and some of them almost unrecognizable; he had a poor memory; delusions of grandiose nature present. No insight. No hallucinations; says he never felt better in his life. Pupils equal, regular in outline, react to light directly and consensually and to accommodation. Knee jerks exaggerated. Responses to the intelligence tests fairly adequate.

Wassermann reaction with the blood serum double positive, with the spinal fluid double positive. Protein content of the spinal fluid increased. Noguchi positive. Cells per c.mm. 94.

Since admission there has been slight change in this patient's condition. He is quiet and orderly, never complains, shows no interest in his surroundings. He has had one very mild convulsive attack.

The following is a grandiose type with great impairment, in which the delusions are not manifested spontaneously but only brought out on questioning.

Admitted March 3, 1911, age 37 years; single; soldier. Family history so far as known unimportant. Early life uneventful. Probable history of syphilis in 1908. The onset of present illness was sudden in February, 1911. Grandiose tendencies became prominent. He claimed he was a great preacher, that he was going to evangelize the world, says he has fifty thousand dollars, confers rank upon attendants as captains, colonels, and brigadier generals; is a great painter and artist. Is very happy, euphoric and talkative.

On admission to this hospital, his condition in no way having changed, he was very happy, euphoric, there were marked grandiose tendencies, he is the strongest man in the world, has an unlimited amount of money; partially oriented, test phrases poorly pronounced, marked slurring. Knee jerks exaggerated, left pupil larger than the right, reacts to light directly and consensually with slight excursion. Physical examination shows him to be somewhat emaciated, otherwise in good general condition. Wassermann with the blood serum double positive; with the spinal fluid double positive. Protein content increased. Cells per c.mm. 82.

Since admission his condition has continued without very great change. Grandiose delusions continue practically unlimited in their extent. After several months he became somewhat more quiet, did not so constantly mention his delusions. On questioning, however, such tendencies were

still to be elicited. He owns the entire hospital, is God, the President, etc. Attention is difficult to hold, he answers questions promptly, talks almost continuously in a rather unintelligible tone. Both pupils still react to light.

This patient showed epileptiform seizures, marked confusion, and pronounced hallucinatory disturbances.

Admitted March 7, 1911, age 36 years; married; soldier. Family history negative. Early life uneventful. Army career of good character. Denies alcoholic indulgence and syphilis. For a year preceding admission experienced some difficulty in attending to clerical work; could not concentrate his mind. Memory began to fail, and he was sent into the army hospital, where he remained for a short time, when he secured a leave of several months. When he again reported he was transferred to this hospital. With the first symptoms were slight apoplectiform attack, involving the left side of the body in December, 1909, passing off in 24 hours; disease has been progressive since then.

On admission here, patient was quiet, speech apparently slurred, enunciation poor even in ordinary conversation. Test phrases were at times very indistinctly pronounced. Bradylalia. No insight. Orientation good. No delusions or hallucinations. Right pupil larger than left; both irregular in outline, absolutely no light reaction; they react to accommodation. Knee jerks much exaggerated. General physical condition good.

In May, 1911, a general epileptiform seizure, following which it was noted that patient was confused, dazed and stupid, attacked other patients, and when asked to explain his conduct said that he had been detailed to care for them and they would not obey his orders. He became very much confused, would undress himself in the day room, apparently had no conception of his condition or situation in general. During June, July and August this condition of disturbance continued. In September he was again improved; was up and about the ward. He is disoriented in all fields, has absolutely no insight, memory markedly impaired, and an easily detected speech defect. In November patient appeared somewhat confused, auditory hallucinations became very marked, and he had been carrying on a conversation with the President, but could hear these voices only in the left ear, in which ear, he says he has been somewhat deaf for a long time. He says his reason for not writing his wife is that he can converse with her in Kansas. Persecutory ideas were present. He thought that one of the other patients was going to kill him. He believes that his restraint in bed for the past several weeks is only part of the plan of this patient to kill him. Since then there has been no change.

Wassermann reaction with the blood serum double positive, with the spinal fluid double positive. Fluid clear; protein content increased; Noguchi positive. Cells per c.mm. 62.

Third Period.

As the second period may be arbitrarily said to be ushered in by the paretic seizure, so the third period may be arbitrarily said to date from the time when the patient begins to soil himself.

Physical Symptoms.—All the physical symptoms become more marked in this stage. The tremor is constant, the ataxia has increased to such an extent that locomotion becomes dangerous or quite impossible and because of the friable condition of the bones falls are liable to produce fractures, muscular weakness is marked and emaciation becomes extreme. In this enfeebled condition the patient becomes bedridden, contractures quite often develop in the extremities and control of the sphincters is lost. Often a contracture of the neck muscles develops, so that the head is kept raised from the pillows in a characteristic attitude, and not infrequently the patient grinds the teeth for hours at a time. The paretic seizures become more frequent, bed sores develop over all the bony prominences unless the most scrupulous care is taken to prevent them, exhaustion occurs and the patient dies in a seizure, from marasmus, or some intercurrent affection.

Mental Symptoms.—In the mental sphere, as in the physical, there continues to be a progressive degradation. The dementia becomes profound, so that the patient may not even know his own name—he ceases absolutely to lead a mental life and leads only a vegetative existence. Often in the mass of stammering, stumbling, incoherent sounds a word here and there will indicate the remains of former delusions. It is, however, not uncommon for the symptoms of the paralytic psychosis to disappear in this stage and for the case to terminate in uncomplicated dementia. Finally, if no intercurrent malady supervenes, the patient sinks into coma and dies.

Juvenile General Paresis.—Although, until recently, but comparatively few cases of paresis in children have been reported, it undoubtedly occurs quite frequently but is usually unrecognized. The possibility of paresis should be thought of in all cases of progressive mental impairment in children.

The disease usually occurs in children one or both of whose parents have had syphilis. Syphilis, of course, may be acquired at an early age. The evidences of parental syphilis should be carefully sought. Inquiry should be made as to the cause of

death of parents, their age, miscarriages in the mother, etc. Inquiry should also be directed to determine early signs of hereditary syphilis in the patients, such as snuffles, sore eyes, etc. The patient may bear the scars of syphilis, such as saddle-nose, corneal ulcers, enlarged glands, scars about the corners of the mouth, Hutchinson teeth, etc.

The disease usually comes to notice from about twelve to fourteen years of age. The early symptoms may be largely motor, such as clumsiness in walking and stumbling. With this is combined a beginning disturbance of speech and inquiry will develop that the child has seemed somewhat dull lately at school. The early picture not infrequently reminds one of the picture of Friedreich's ataxia.

From the development of these early symptoms there is a progressive mental decay usually of the simpler dementing type. School knowledge is finally absolutely lost and the dementia becomes profound. There is also a steady progress in the motor symptoms. These cases seem to develop contractures of the extremities quite early and to become absolutely helpless.

All the usual signs of paresis are found,[11] both clinically and anatomically.

Gross Pathology.—In opening the calvarium the dura is found abnormally adherent to the skull cap and internally may present areas of hemorrhagic pachymeningitis. The surface of the brain shows areas of congestion more frequently in the frontal, parietal and temporal regions than in the occipital. The leptomeninges are thickened, opaque, and along the lines of the great vessels contain a milky, opalescent fluid. In attempting to remove them they are found abnormally adherent, so that portions of the cortex are torn off with them—*decortication*—giving a worm-eaten appearance to the denuded surface. This appearance is very characteristic and is almost always present, except perhaps early or in the very late stages when a subpial collection of serum has raised the membranes from the brain so far that they may be readily removed. The brain as a whole is shrunken and when opened the ependyma is found typically to be granular.

[11] Hough, Wm. H.: A Case of Juvenile General Paresis. Jour. Nerv. and Ment. Dis., Oct., 1909.

Histopathology.—The monumental work of ALZHEIMER[12] is the authority on the miscroscopic changes in this disease. He gives an abstract of these changes as follows:

Blood Vessels.—(*a*) One of the most striking features is the marked proliferation of new capillaries. These are often extremely rich, often showing like a thick net-work of capillary meshes. These are the product of an active, productive, inflammatory process, and come about through the very rich formation of new endothelial cells, and branching and vascularization of the regenerating intima. This new vessel formation in some cases is excessive, in others less noticeable.

(*b*) There results an increase of elastic tissues by the formation of new net-works about the proliferating endothelial cells and a formation of stronger membranes.

(*c*) A proliferation of the adventitia also results, at times slight, again very marked.

(*d*) A dilatation and infiltration of the adventitial lymph spaces. The infiltrating cells are largely made up of *plasma cells.* [The origin of these cells has not been satisfactorily explained. Whether they are transformed leukocytes or derived from the connective tissue is a mooted question.] They are never absent even in the most acute cases. Lymphocytes and mast-cells are also common in the lymph spaces.

(*e*) In most of the advanced cases of paresis, degenerative changes are common in the blood vessels, especially in the upper cortical layers. A complete destruction of the vessels may take place and hyaline degeneration result.

(*f*) In the cortex of the paretic, a peculiar cell form, NISSL's *Stäbchenzellen* or rod-like cells, is uniformly present. [ALZHEIMER thinks they develop from some of the elements of the blood vessels. MOTT thinks them collapsed capillaries.]

Ganglion Cell Changes.—(*a*) These are extremely diverse and widespread, but are not of themselves pathognomonic of paresis. Practically no case of paresis is known that does not show ganglion cell changes of some character.

(*b*) These changes embrace practically all of the forms of ganglion-cell alteration that have been described. Many of these

12 Alzheimer: Histologische Studien zur Differentialdiagnose des Progress. Paralyse. Hist. und histopath, Arbeiten, Bd. I, 1904.

are extreme in grade, as shown by the rapid degeneration, and the necrobiotic changes that are present.

(*c*) A great number of ganglion cells are completely destroyed in the advanced cases.

(*d*) Not only are the ganglion cells altered, but in all probability the finer nerve structures which lie between the ends of the sheath-covered axis cylinders and the ganglion cells are distinctly involved.

(*e*) In the majority of advanced paretics, the arrangement of the ganglion-cell groups is modified, *i.e.,* the cell architecture of the cortex is changed in lesser or greater degree.

Changes in Axis Cylinders.—These undergo early degeneration in many cases. Present technical methods do not permit the demonstration of these alterations in the very early stages, but in the advanced cases, the degeneration of the axis cylinders is very marked, such breaking down either being localized or involving the entire cortex.

Changes in Glia.—(*a*) There is marked growth in the connective tissue elements. In the advanced cases such increase of glia elements forms almost a felt of tissue in the cortex.

(*b*) The major portion of the new glia is found in the outer layers of the cortex, making it stronger, as it were. The thickening due to new glia elements is particularly noticeable about the blood vessels.

Although the cortex is most prominently affected, other portions of the brain, together with the spinal cord, are usually involved, while the general disturbance of nutrition is shown in diseased and degenerated conditions of various other organs, particularly the kidneys.

A number of investigators have recently reported marked changes in the *choroid plexuses.*[13] These changes are significant in view of their known function of secreting the cerebrospinal fluid and their hypothetical function as selective filters of the products of metabolism and endocrine secretions.

Pathology of the Psychosis.—The pathology which has been given up to this point is the pathology of the syphilitic infection. In addition to this there is a pathology of the type of psychosis

[13] A. E. Taft: A Note on the Pathology of the Choroid Plexus. Arch. Neurol. and Psychiat. Vol. VII, February, 1922.

which the individual paretic exhibits. As indicated below the paretic may show various types of reaction, schizoid, paranoid, manic-depressive, or what not, and therefore in addition to the pathology of the infection we would expect to find the pathology of the particular psychotic type of reaction which the individual might present and which, as I have indicated in the chapter on dementia precox, is probably dependent upon certain types of organ constitution which can be defined at autopsy.

Interpretation of the Paretic Psychosis.

The interpretation of the mental symptoms of paresis may advantageously be approached from two angles; in the first place from a consideration of the personality make-up previous to the onset of the disease process. The disorder of mind must be a disorder of that which existed before and therefore the character of the mental symptoms is directly dependent upon the type of individual. Osnato[14] believes that it is the abnormal types of personality that are more apt to develop paresis following luetic infection. In the second place as an expression of organ inferiority (cortex) in harmony with the conception of Adler[15] and also with the conclusions of Bolton.[16]

The grandiose type of paretic symptom I believe falls quite in line, in its interpretation, with this concept of organ (cortex) inferiority. The destructive leutic process produces as it advances an ever increasing mental inefficiency which is compensated for in the only possible way because of its organic basis, namely by phantasy. The patient begins to build up delusions of power to compensate for the progressing weakness and these delusions increase in improbability as the destructive process results in increased mental weakness. This pyramiding of the delusions of grandeur (the patient is not only worth hundreds of thousands, but millions, trillions, quadrillions, etc., finally having to invent words to express the size of his fortune) goes on and on in a vain effort to overtake the results of cortical (mental) destruc-

14 Osnato, Michael: Personality in Paresis. Jour. Amer. Med. Assn., Feb. 16, 1918.

15 Adler, Alfred: Study of Organ Inferiority and its Psychical Compensation. Nerv. and Mental Dis. Monograph Series, No. 24.

16 Bolton, Joseph Shaw: The Brain in Health and Disease, London, Edward Arnold, 1914.

tion. Real inefficiency is compensated by an effort to think himself efficient, efficiency is sought to be brought about by thinking hard enough that it is really so, results are sought by thinking of them as attained—the "all-powerfulness of thought" (see p. 13).

Hollós and Ferenczi[16a] have demonstrated quite conclusively that the paretic psychosis is interpretable along psychoanalytic lines quite as is any frank functional psychosis.

Diagnosis.—One of the important aids to the diagnosis of paresis is by the method of examination of the spinal fluid. A well-marked lymphocytosis will serve to differentiate this disease from the so-called vesanias or functional psychoses but not of course from other conditions in which the meninges are seriously involved.

The cellular content of the cerebrospinal fluid is similar to that found in cerebrospinal syphilis except that the phagocytic cells (phagocytes, macrophages, Körnchen cells) are less numerous and there are found in addition from one to six per cent. of plasma cells.

The Wassermann test will be positive in both blood serum and cerebrospinal fluid and the Noguchi test will show an increase of globulin.

The principal diseases for which paresis may be mistaken at the clinical level, especially in the early stages, are tabes, acquired neurasthenia, alcoholism, brain tumor, cerebral syphilis, disseminated sclerosis, the functional psychoses, epilepsy, and arteriosclerotic dementia.

The principles of its differentiation from the various psychoses have been already indicated. The presence of the underlying dementia in a person of middle age should make us at once suspicious and if to this condition the physical signs can be added a diagnosis can with certainty be made.

The following is a tabulated statement, taken from Southard and Solomon,[17] of the characteristic, physical and mental symptoms of paresis:

[16a] Hollós, S., and Ferenczi, S.: Psychoanalysis and the Psychic Disorder of General Paresis. Nerv. and Ment. Dis. Monogr. Se. No. 42.

[17] E. E. Southard and H. C. Solomon: Neurosyphilis. Published by W. M. Leonard, Boston, 1917.

Physical Symptoms.	*Mental Symptoms.*
Early Headache	Intake Impaired
Visual Disorder	Consciousness Clouded
Hypalgesia	Fatigability Increased
Adiadochokinesis	Hallucinosis Rare
Ataxia	Amnesia—Recent: Chronology and
Nasolabial Flattening	Storage Impaired. Fabulation
Vocal Change	Oversuggestibility
Speech Disorder	Judgment Impaired
Writing Disorder	Fantastic Delusions
Loss of Manual Dexterity	Insight Into Illness Nil
Pupillary Changes	Early Irritability or Hebetude
Reflex Changes	Quick Shifting Emotion
Seizures	Character Change
Late: Paralysis, Contracture	Conduct Slump

The most important differentia, however, are the serological findings.

Typical Laboratory Findings in Neurosyphilis (Nonne, 1915).

Diagnosis	W R. Blood Serum	W. R., 0.22 cc. Blood Serum.	Spinal Fluid 1.0 cc.	Phase I, Globulin	Pleocytosis
Paresis or Taboparesis	Positive in almost 100%	Positive, 85–90%	Positive, 100%	Positive, 95–100%	Positive, about 95%
Tabes (not combined with paresis)	Positive, 60–70%	Positive, 20%	Positive, 100%	Positive, 90–95 %	Positive, 90%
Cerebro-spinal Syphilis	Positive, 70–80%	Positive, 20–30%	Positive, almost always	Positive, almost always. Negative only exceptionally	Positive, almost always

From *tabes dorsalis* the differentiation is not so easy, and in fact there remain a few cases where it is impossible, and we must wait for the development of further symptoms. This is due to the fact that in their early stages the physical signs may be identical in the two diseases. When, however, we observe a case in which the tabetic signs are somewhat atypical with, for instance, preservation of knee-jerks or marked ataxia of the arms, we may be suspicious of paresis and if with this condition we find associated evidences of mental disturbance a tentative diagnosis is in order.

In differentiating paresis from *acquired neurasthenia* the general mental attitude of the patient is of great significance. Whereas

the neurasthenic is given to exaggerating his ills, to constantly complaining of his aches and pains, and keeps close observation of every change of symptoms, the paretic is usually indifferent or may on the contrary consult a physician under protest and in the firm belief of the uselessness of so doing as he feels so well. This is not invariable, as I have seen paretics well advanced in the disease who were much concerned over their condition. The contrary state of mind, as illustrated by one of my patients, is more common. On her admission I discovered a well-marked hemiplegia which she actually knew nothing of, until I called her attention to it. In addition to this, there is in neurasthenia no dementia, no disturbance of speech or writing, no history of seizures, the tendon reflexes are equal and not abolished, the pupils equal, respond to light and accommodation and are more apt to be dilated, while in paresis they are frequently unequal and often very much contracted. The laboratory findings will of course be conclusive.

It is practically impossible at times to differentiate paresis from nonparetic forms of *chronic tertiary syphilitic meningoencephalitis,* either clinically, serologically, or even anatomically. The line of demarcation between these two conditions is one of degree and the nonparetic meningoencephalitis may merge into the paretic form.[17a]

From *alcoholism* the diagnosis is often not easy. The oration of the chronic alcoholic has much in common with the dementia of paresis. Here again we must turn to the physical signs and note carefully the historic facts. Following a long debauch, however, symptoms may arise, which, in the absence of a history, would warrant a diagnosis of paresis—the so-called *alcoholic pseudo-paresis.* These symptoms disappear, though, in a remarkable manner when the alcohol is withdrawn. The serological findings are diagnostic.

In *toxic conditions generally* sluggish reaction of the pupil to light is not uncommon, while Argyll-Robertson pupil may probally occur for a temporary period.

Symptoms occasionally develop in the course of *brain tumor* which closely resemble paresis. The diagnosis must be made on

[17a] Solomon, H. C.: General Paresis. Amer. Jour. Psychiatry, Vol. ii, No. 4, April, 1923.

the preëminently focal character of the physical signs in the former disease, although paresis often presents very marked focal signs, especially early in its course. The serological findings will usually make this situation clear.

From *disseminated sclerosis* the differentiation is sometimes difficult. The combination of intention tremor, nystagmus, scanning speech and spasticity will, however, usually leave little room for doubt, although some of these cases do ultimately develop typical signs of paresis.

Plaut[18] has claimed a most important differential sign. He claims that only in the metasyphilitic diseases—tabes and paresis—will the spinal fluid give a positive Wassermann reaction, while the blood serum reacts positively in all cases of syphilis. Experience has not borne out this claim. Here the Lange colloidal gold test is of great help, the test showing either in the syphilitic or the paretic zone as the case may be. A typical paretic curve would be 5555432000, a typical luetic curve would be 3321122200.

From the so-called *functional psychoses* a differential diagnosis may be difficult in the early stages, especially if there are marked emotional disorders or paranoid delusions. The presence of the physical signs of paresis associated with symptoms of dementia and the cytological examination of the cerebrospinal fluid will usually clear up the difficulty.

In the early stages, in those cases that have been ushered in by a paretic seizure, *epilepsy* may be suspected. The absence of the history of epilepsy should suggest paresis.

The diffusion of the destructive lesions in *arterio-sclerotic dementia* is not infrequently responsible for a picture closely resembling paresis. This condition occurs much later in life, usually after the sixtieth year; there are evidences of advanced vascular disease, and the characteristic senile disorder of memory is present.

An examination of the cerebrospinal fluid will seldom show any increase in the cellular constituents and if there is an increase it will be slight, while the character of the cells is practically normal. The Wassermann test will be negative.

18 Plaut, F.: Die luetischen Geistesstörungen, Centralbl. f. Nervenheilkunde u. Psychiatrie, Sept. 1, and 15, 1909.

It must not be lost sight of that syphilis may complicate any of these conditions and give the characteristic laboratory findings.

Course and Prognosis.—The disease may be said to be absolutely fatal, although an occasional alleged cure is reported, unless the new method of treatment by inoculation (see treatment) proves itself equal to preventing this issue. *Remissions* quite frequently occur (see p. 196), so that the patient may be well enough to leave the hospital and remain away for weeks or even months. The fact that remissions occur should never be forgotten in giving a prognosis to the relatives. The acute forms of the disease are rapidly fatal, the majority die in from eighteen months to three years, while in a certain few cases the disease process is very slow and may occupy many years.

Death usually occurs from some intercurrent affection, pneumonia, cystitis, terminal infection, or from the disease itself, which leads to an extreme degree of emaciation and exhaustion.

The period from infection to the outbreak of paresis varies considerably but tends to concentrate at certain intervals. KRAEPELIN[181] gives the usual interval as 10–15 years. BRINKMANN[182] gives the average interval (based on 586 cases) as 14.8 years (15.7 for men and 13.9 for women). He subscribes to the view that the older the individual at the time of infection the earlier the outbreak of paresis.

Treatment.—This disease is from the first preëminently a disease for institution care. The patient is absolutely unable to care for himself and in the great majority of instances the friends are equally unable to care for him. As soon as the diagnosis is made steps should be taken looking towards the appointment of a committee of his person and property or otherwise guarding his business interests, which upon investigation will show almost without failure evidences of poor management, the result of early manifestations of the dementia.

While antisyphilitic treatment has as yet yielded no brilliant results in the treatment of paresis there is always justification for attacking the problem energetically. In paresis vascular and

[181] Kraepelin, Emil: General Paresis. Nerv. and Ment. Dis. Monogr. Se. No. 14.

[182] Brinkmann, Franz: Wandlungen im Verlauf der progressiven Paralyse der Irren? Allg. Zeitschr. f. Psychiatrie, Bd. 80, H. 1/2, 1924.

meningeal alterations often exist side by side with parenchymatous changes. These changes are materially, often much, helped by antisyphilitic therapy. The necessity for treating every case is further evident from the fact that certain nonparetic forms of neurosyphilis give both the clinical and serological picture of paresis and yet are much more hopeful with proper treatment.

The treatment should be intensive in character if undertaken at all.[18a] If one method does not produce results others should be tried. Only by the most persistent efforts for a long time are the best results obtained. The present methods of using the arsenic compounds—arsphenamin (and more recently tryparsamid)—are by the intravenous and intrathecal routes, the latter associated with spinal drainage, while ventricular and cisternal injections of serum are coming into more general usage owing to the necessity of getting the drug at the site of the trouble and the impossibility of doing this in any other way with any degree of certainty.[18b]

Tube feeding may have to be early resorted to because of the development of dysphagia and the consequent danger of choking. The most scrupulous care should be taken to prevent the development of bed-sores, as they are practically impossible to heal and do much towards hastening the fatal termination.

There has recently developed a new method of attack upon the therapeutic problem presented by paresis. Based upon the frequent reports of psychoses being healed through intercurrent infections and upon the hypothesis that the disease might as well be attacked by raising the bodily resistance and improving its fighting qualities as by endeavoring to destroy the spirochete, certain investigators tried the method of inoculating the paretic with various toxic and infectious agents. The substances used have been Koch's tuberculin, typhus vaccine, and finally tertian malaria, the infection at present being experimented with. The inoculated patient is permitted to have eight or nine malarial paroxysms, the malaria is then checked with quinine and this treatment is fol-

[18a] There is some warrant for believing that the mere giving of a few doses of salvarsan simply kills off the spirochetes accessible to the blood stream and thus lessens the bodily reaction against them, and so may actually interfere with the production of immune bodies in maximum quantity.

[18b] Solomon, H. C.: General Paresis. Amer. Jour. Psychiatry, Vol. ii, No. 4, April, 1923.

lowed by about six neosalvarsan injections. Wagner von Jauregg[19] of Vienna has reported most favorable results from this treatment as have also others, notably Weygandt[20] of Hamburg. They report most encouraging results, namely, 60 per cent. of remissions in fifty treated cases as against 11.71 per cent. of spontaneous remissions in 875 untreated paretics. Von Jauregg reported 120 completed cases with 39 complete remissions with returns to occupations and 51 more or less incomplete remissions. Von Jauregg thinks that one can predict a complete remission with a fair degree of certainty in cases in which the disease is not of long duration. There seems to be no correlation between the clinical improvement and the serological findings which are little influenced.

The present status of the treatment of paresis in this country can be pretty well understood from the following statements.[21] A series of 1,000 cases of paresis who were not given any antisyphilitic treatment showed 3.5 per cent. of remissions of varying length but sufficiently long for them to leave the hospital and resume their usual occupations (Kirby). In another series of 500 cases treated intensively with neoarsphenamin intravenously remissions occurred in 4.2 per cent. Solomon reports 50 per cent. clinical improvement and 10 per cent. remissions in 220 cases treated intensively by the usual methods but not using malaria. Lewis reports 30 per cent. of good remissions from the malarial treatment as used at this hospital, based on very conservative diagnosis, while Kirby reports 40 per cent. clinical improvement in cases treated by malaria.

[19] W. v. Jauregg: The Treatment of General Paresis by Inoculation of Malaria. Jour. Nerv. and Ment. Dis., May, 1922.

[20] Weygandt and Kirschbaum: Mitteilungen über Paralysebehandlung. Dtsch. Ver. f. Psychiatr. Jahresvers., Dresden, 1921.

[21] See Am. Jour. Psych., pp. 221–3. Also Lewis, N. D. C.: The Present Status of the Malaria Inoculation Treatment for General Paresis. Jour. Nerv. and Ment. Dis., Vol. 61, No. 4, April, 1925.

CHAPTER XI.

Dementia Precox.

General Characteristics.—Dementia precox is a psychosis essentially of the period of puberty and adolescence, characterized by a mental deterioration tending to progress, though frequently interrupted by remissions.

There has been a great deal of objection to the name "Dementia Precox," because of the fact that some cases develop considerably later in life than the adolescent period. For those who are anxious that the name should be significant of the thing named, it might be satisfactory to think of dementia precox not as a psychosis developing early in life, and therefore precocious, but as a psychosis in which the factor of deterioration appears early, in other words, a psychosis in which the deterioration is the precocious symptom, rather than an individual in whom the psychosis is precocious. Because of the further fact that the so-called dementia is in many instances at least more apparent than real, and because a careful analysis of the psychology of these cases shows that the outwardly bizarre and erratic, and often silly symptoms have in reality a foundation which is rationally explainable, Bleuler has suggested the name "Schizophrenia," which indicates, as will be seen later, a splitting of the psyche, considered by him to be the real fundamental symptom of the disease.

Etiology.—Dementia Precox is essentially a disease, as stated, of the period of puberty and adolescence. Heredity plays an uncertain rôle in its etiology but the disease seems to afford evidence of Mendelian recessive factors. The future patient might be expected to be rather dull in his early youth and show difficulty in getting on with his studies. While this is not infrequently the case, still cases often occur in young persons, not only of apparently usual mental power, but of brilliant, perhaps precociously brilliant faculties. This has thrown some doubt on the hereditary basis of the disease, especially as sometimes no serious taint can be found in the antecedents. In this particular form of mental

alienation, I think it is, however, especially important to search for other than distinctly mental disease in the ancestors.

Wolfsohn[1] has made a study of the material of the Burghölzi Asylum at Zurich with a view to the determination of the frequency of the hereditary factor. Of 2215 admissions there were 647 cases of dementia precox. About 90 per cent. of these showed hereditary taint: of four hereditary factors insanity was the most frequent (about 64 per cent.), followed by nervous diseases, alcoholism, and other forms of hereditary taint: heredity was combined in about 34 per cent. The most frequent combinations were insanity and alcoholism, and insanity and nervous disease: the distinct influence of heredity could not be proven in the cases in which the taint was alcoholism, nervous disease, and other forms: the influence of the taint has no striking effect on the character of the first symptoms: the catatonic form is the most and the paranoid the least affected by the taint of insanity.

Every individual born into the world has, if it could be determined, a definite potentiality for development. The force of the impetus which starts it on its path is sufficient to carry it a certain definite distance. The predetermined goal, in each case, will be reached if no accident intervenes to prevent. In the subject of this disease the original impetus has been weak, only sufficient to carry them a short way and when its force is spent development stops and the retrograde process is hastened, or perhaps immediately initiated by some special physical or mental stress occurring at the critical point of puberty and adolescent evolution. As the French have it, these patients are "stranded on the rock of puberty."

Aside from this class of causes, direct heredity is frequently in evidence, and families are found with several cases of dementia precox, just as similar conditions occur in manic-depressive psychosis.

Of exciting causes it would seem that severe shocks, both physical and mental, as, for example, severe hemorrhages, infections—often puerperal—fright, and that train of emotional disturbances following seduction and desertion are found. Particular stress should be laid upon psychogenic factors in the etiology and they should always be sought for.

[1] Wolfsohn, Ryssa: Die Heredität bei Dementia præcox, Allg. Zeitschr. f. Psych., Bd. 64 (1907), Heft 2 and 3.

Recently a great deal has been said about a possible toxic factor as being responsible for the disease and this toxic factor has been supposed to have its origin in some of the glands after the analogy of the toxin in thyroidism—probably some internal secretion of the testicle or ovary, as the disease is so closely associated with the changes incident to puberty. Then, again, the changes of metabolism in this disease are quite pronounced and are thought to find their explanation in a toxemia.[2]

Recently von Monakow[3] has put forward the theory that the choroid plexus fails in its function as a selective filter for the products of metabolism and endocrine secretions. Degenerative changes in the plexuses make them incapable of properly neutralizing and detoxicating the products of the internal secretions in the process of their transmission. Emotional upsets and strong passions maintained for long periods attended by excess production of glandular secretions make demands upon the plexuses that are more than they can measure up to.

The latest tendency is to give greater prominence to the mental factors as having etiological importance. Jung[4] by his analyses has especially called attention to the buried complexes with resulting symptoms, while Meyer[5] considers the condition more from a biological standpoint as being the result of continued inability to adjust with the development of unhealthy biological reactions. Recent studies would indicate that these difficulties arise in people of peculiar character make-up—more particularly in those who have what is termed a "shut-in" character. These persons do not meet difficulties openly and frankly, they are inclined to be seclusive, not to make friends, to have no one to whom they are close and with whom they can talk over things. They do not come into natural and free relation with the realities, are apt to be prudes, overscrupulous, and exhibit a sentimental religiosity. In short the psychogenic features of the disease are conditioned by the mental conflict.

[2] Jelliffe: Dementia Precox and the Vegetative Nervous System. N. Y. Med. Jour., 1917.

[3] C. von Monakow and S. Kitabayashi: Schizophrenie und Plexus choroidei, Schweiz. Arch. f. Neurol. u. Psychiat., 1919, Vol. 4.

[4] Jung, C. G.: The Psychology of Dementia Præcox, Nerv. and Ment. Dis. Monog. Series, No. 3.

[5] Meyer, Adolf: Fundamental Conceptions of Dementia Præcox. Brit. Med. Jour., Sept. 29, 1906.

General Symptomatology.—*Mental:* In considering the mental symptoms of dementia precox STRANSKY[6] happily calls attention to the very different impression this disorder makes on one than do such conditions as mania, melancholia, paranoia and amentia (confusion). These latter disorders seem to us to be due to the deviation of normal mental processes either to the positive or negative side; we can put ourselves, as it were, in the position of the patient, can feel his feelings in miniature. The differences are merely differences of degree, of more or less. With dementia precox, however, the effect is quite different. The awkward, constrained attitude of these patients makes us feel quite out of touch with them, they seem unnatural, their acts "*unpsychological,*" to coin an expression.

This fundamental difference in the impression created in us by the dementia precox patient from that produced by other types of mental disorder STRANSKY traces to what he believes to be the basic factor in the symptomatology—*intrapsychic ataxia.* By this term he means a disturbance of coördination between the intellectual attributes of the whole psyche and the affective attributes, or as he calls them respectively the noopsyche and the thymopsyche. Intrapsychic ataxia might then be called more specifically a *noo-thymopsychic ataxia.*

The recognition of this ataxia, the separation of intellectual and emotional reactions, has led some to prefer the name schizophrenia to dementia precox.

This intrapsychic disturbance of coördination leads to a defect, the signs of which are much more marked in the emotional sphere than in the intellectual sphere.

Inasmuch as this disturbance of coördination is the most important expression of dementia precox, according to STRANSKY, it will be worth while to go somewhat into the details of his description of it.

The coördination disturbance may manifest itself in different ways and in different degrees. The simplest way is by a lack of harmony between the expression of the affect and the idea content of thought. For example the patient cries when he should be glad, or vice versa, though much commoner than this con-

[6] Stransky, Erwin: Über die Dementia Præcox, Streifzüge durch Klinik und Psychopathologie. Verlag von J. F. Bergmann, Wiesbaden, 1909.

trasted reaction is an affective reaction which is inadequate—the patient merely simpers or smiles when the facts would warrant sadness or hearty laughter. We come across anger from wholly indifferent causes; fear, timidity, shyness appear without any apparent reason; familiarity, obtrusiveness, eroticism occur, displaced, perhaps in the same situations in which there was formerly embarrassment, shyness, coldness. Quite commonly a certain state of feeling dominates all conditions of consciousness, a certain stupidity and apathy, a surprising poverty of affect, which is in strong contrast to the clearness which the patient may demonstrate. Cold and passive, without so much as moving an eye lash, without any spontaneous reaction, without expressing a wish, he is oriented to time and place and person, is conversant with everything going on about him, shows good school knowledge, his memory is faultless, shows up well in an examination of his intelligence, and he denies feeling sick. However, he shows no longing after freedom, or feeling of sadness at his position; these all appear extinguished in him. This coldness produces an unnatural impression. One gets the impression of the dream state in epilepsy, the mental state of which has a certain symptomatic relationship with many forms of dementia precox.

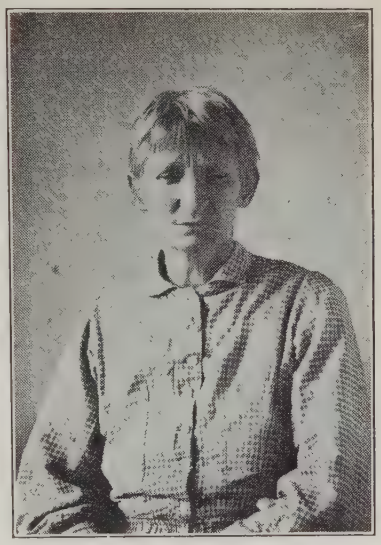


FIGURE 4. One of the characteristic facial expressions of a patient with dementia precox. This picture of introversion and deterioration is frequently mistaken for one of depression. The patient appears much older than her chronological age, which is twenty-five years.

The mood swing, the *psychæsthetic proportion,* according to KRETSCHMER is between hyperæsthetic (sensitive) and anæsthetic (cold).

The lack of conformity of the emotional reaction and the idea

content—*affective dysharmony*[6a]—is shown not only with reference to a given time but in relations of succession. Moods and affects change in all possible ways without visible inner or outside causes. Here we see the same ataxic tendency. The April-weather behavior of the affects and moods suggests the relationship with hysteria.

This condition of intrapsychic ataxia does exist but BLEULER[7] has shown quite conclusively, I think, that it is only one expression of what he calls a *splitting of the psyche.* The characteristic associations of precox all show this tendency toward splitting, while negativism is a demonstration of it.[8] In negativism two entirely contrary streams of thought flow side by side without being able to mix, with no possibility of synthesis, each producing its characteristic reactions. Thus a woman loves her husband for some qualities and hates him for others. There is no compromise and first one and then the other feeling is in the ascendant. We will see the importance of this conception when we come to consider the nature of the dementia.

It is this fundamental disturbance in coördination that gives rise to the commonly described symptoms of *failure of voluntary attention* and the *lack of interest* which these patients show both in themselves and their surroundings. They care little if at all about what goes on about them, and although confined in an institution, express themselves as satisfied with their condition and have no desire to leave. They sit idly about, giving no heed to what goes on about them, are unable to apply themselves to any sort of work or even reading, and when questioned may even pay so little attention as not to understand what is said to them, so that the question has to be repeated.

From this lack of attention things in the environment are often not perceived at all, but when they are perceived they are understood quite fully, and we usually find these patients are *well*

[6a] This dysharmony exists only on the surface. The key to the situation lies in the unconscious. The affect which is out of harmony with what appears on the surface is really in harmony with what is going on in the unconscious.

[7] Bleuler: Dementia Præcox oder Gruppe der Schizophrenien. Pub. by Deuticke, Leipzig und Wien, 1911.

[8] Bleuler: The Theory of Schizophrenic Negativism (Eng. trans. by White), Monograph Series, No. 11.

oriented in all respects, temporal, spatial and personal, and show no *evidences of clouding of consciousness.*

In the same way also arises the so-called *emotional deterioration* which they exhibit. It is this symptom which is largely

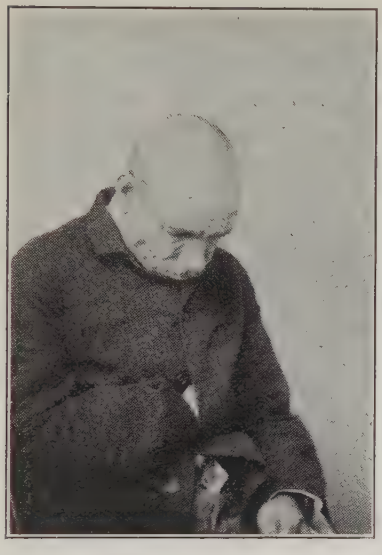


FIGURE 5. Typical bodily attitude and facial expression of a deteriorated catatonic dementia precox patient, whose disorder was of twenty-five years duration. The world has been long since entirely relinquished.

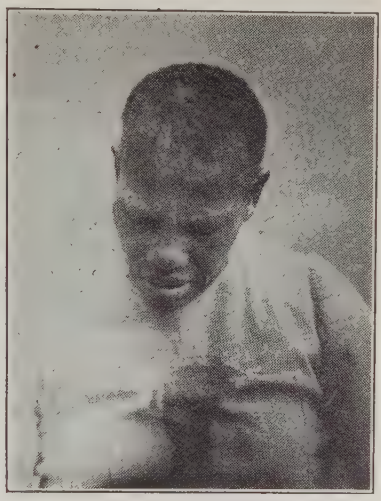


FIGURE 6. Negro woman extremely deteriorated from dementia precox processes: showing complete encystment of the personality: note the dribbling of saliva. Patient lived for many years in this condition.

responsible for their indifference and lack of interest already mentioned. The expressions of joy or sorrow, if they occur at all, are shallow and of short duration. A death, a birth, a marriage, the visit of a long absent relative, are all apprehended with the same lack of emotional expression. No matter how much pleasure or pain the event might be supposed to give, or would give in a normal person, the patient receives it with indifference, without surprise, without an expression of interest often, in the most matter of fact sort of way, as if such things were occurring hourly.

A similar condition of affairs is found in the intellectual domain. The ideas, the *content of thought,* show a *shallowness* indicating

an intellectual enfeeblement. Aside from the fact that the fantastic, unusual, bizarre character of the delusions indicates the dilapidated groundwork on which they are founded, the patients make little or no effort to support their false beliefs, show absolutely no insight into their condition, and make the most manifestly absurd statements often in the midst of a fairly coherent conversation without at all appreciating the incongruity. Thus, one patient was able to answer questions bearing on history quite well, but when asked for some explanation as to his belief that the electric lights were burning holes in him replied by saying. "They are pretty good people anyway." The same patient had the delusion that he had no eyes or hands. Usually when questioned about such evident absurdities no explanation is vouchsafed and the patient retires behind the reply, "I don't know." The *dilapidation of thought* becomes more and more manifest as deterioration progresses, leading finally in its expression to almost complete incoherence, as shown in the following example.

"Oh, yes, indeed, that the weather and condition of such become rainy and people dying, and the worms eat the bodies up and take them from their coffins, they would not allow you to disclose the bodies, because the overflow of saliva causes the disease by which people cannot exist. Well, I am the only King over in Ireland. I do not know where he has gone. They wanted to put me in a wash-tub and everything else. They do not know what I am, do you see. They come into a saloon, but they will not give you anything to drink. I was the bartender there. I am a stranger. People kill them, but they come to life again. They take the position of strangers when they leave their happy homes, but I do not understand how they could kill a woman outright. What right have you got to take a stranger when they are in their rightful homes? This is the post of duty where men of enlistment return to their happy homes. This is the post of duty to enter not. They must be prisoners. They do not get out of sight. Dr. Hogan is a doctor for the purpose of curing people; also Dr. Burns; where they are going I know not. Well, I tell you, doctor, I suffered terribly this winter, also on post of duty. I do not know anything at all about it, but there is an illustration there. I cannot blame the band while at school about their music. That thermometer there is to tell whether you live or die, and it becomes such a dangerous position that the enemies approaching at this post of duty, I cannot do it with the light. The man escaped. He is living at his home in Binghamton, N. Y. Where I know not. I know that his name is Irish. They will not take him to his rightful home in the condition of such by which he has no means of support by attending bar. I was kidnapped upon the ocean, and taking en route to this place I know not. Well, as I was going to tell you, I am the enemy himself. These people here cannot perform an

operation. They do not know what they are. Well, do you know me! I am the King of Ireland, and also of all countries in existence. I was the fellow that killed the Queen. I do not know who she was. I got the picture of him. His last name was Duffy. I cannot get in communication with him."

In this example the incoherence reaches a very high degree, the conversation becomes a mere "*word salad,*" in which it is only possible, here and there, to pick out an association, and that only of superficial character.

The *memory* is usually defective, especially for recent events, reminding us of the memory defect of senescence. This defect, to a certain extent, is undoubtedly apparent only and dependent upon lack of perceptions because of the inability to fix the attention. An event which is not perceived will, of course, not be remembered, and similarly an event which is only perceived in a desultory manner and not fully comprehended will not be recalled at its true value. It becomes quite difficult, therefore, to differentiate the elements of this defect and tell how much is due to a disorder of memory per se. Undoubtedly a certain proportion of it is, though, and this defect is probably, largely at least, a defect of impressibility.

Knowledge acquired before the disease began, however, especially therefore, as these patients are still quite young, knowledge acquired in school, is often remembered with quite remarkable accuracy. Whole tables of matter, learned by rote, can be repeated, and often this ability constitutes a striking feature of the case when the dementia has become profound, and this symptom is perhaps about the only one left to indicate that the patient was ever possessed of normal mental faculties.

Many of the symptoms of dementia precox are conditioned by the existence of submerged complexes. The complex does not cause the disease but it colors the symptoms. The limits of this work forbid more than a mere mention of the most important manifestations.

The patients frequently complain that their thoughts leave them suddenly when they try to explain themselves and we note in these cases, often in the midst of a conversation, a sudden pause and then a difficulty in resuming the train of thought. This *thought deprivation* we have learned from association work is the result of strong emotional content—the flow of thought being inhibited

by the presence of strong emotion. We have seen, for example, how the reaction time is lengthened when an idea is struck with strong emotional coloring. The patients often give a delusional explanation to these experiences and claim that they are robbed of their thought by their enemies.

We find also that frequently in the midst of a perfectly coherent and reasonable conversation a perfectly senseless remark will be injected. These *saltatory associations* indicate the momentary outcrop of a complex association.

In the same way the *stereotypies,* particularly the *speech perseverations,* center about the complexes and the *neologisms* become *complex indicators.* Because of the submergence of the

FIGURE 7. Photograph showing one of the facial mannerisms common in hebephrenic precox patients. This girl died of tuberculosis a few years after admission to the hospital

FIGURE 8. A common facial expression seen in dementia precox. In many respects this female patient had the physique of a male and if appropriately dressed would have easily passed as such.

complexes, the patient having no comprehensive knowledge of their existence, questions addressed to eliciting an explanation of these phenomena produce no results. The patients are *inaccessible.*

The general symptoms of the disease that are common to all

varieties are, as might be expected, the symptoms of mental deterioration, of decreased mental efficiency.

Physical: These patients often emaciate during the early stages of the disease, anorexia and insomnia are common, circulatory disturbances, rapid cardiac action, and cyanosis of the extremities are often seen, as is also dermographia, the result of vasomotor paralysis. The deep reflexes are exaggerated and the pupils quite commonly widely dilated. Epileptiform, and especially hysteriform, attacks are quite frequently observed in the early stages.

In the early history many apparently unimportant symptoms may be found, such as headaches, vertigo, etc. URSTEIN[9] calls particular attention to the occurrences of gastric disturbances, often periodically. This is one of the general neurastheniform symptoms one frequently finds in the anamnesias. It would seem as if these patients hardly had force enough to live, that some set of organs was always suffering, there was not enough energy to go round.

Bodily Types.—KRETSCHMER[9a] has described two main types of bodily configuration that seem to be closely correlated with the schizoid make-up: Their characteristics are briefly as follows:

Asthenic Type.—Characterized by a deficiency in thickness, but not in length, of all parts of the body—face, neck, trunk, extremities, and with similar deficiencies in skin, fat, muscle, bone and vascular system. The chest is long, narrow, and flat, the ribs are easily counted and the rib-angle sharp. The stomach is thin and devoid of fat. The skull is small, 55.3 cms. in circumference, short (sagittal diameter 18.0) and broad (15.6). The face from the front is a shortened egg form: in profile it is angular with long nose and hypoplastic underjaw.

Athletic Type.—Characterized by the strong development of skeleton, musculature and skin. The man is middle-sized to tall, with wide projecting shoulders, superb chest, firm stomach, a trunk which tapers to a narrow waist and magnificent legs. The head is long, carried upright on a free neck with a firm trapezius with a sloping linear contour from the front. There is marked bone as well as muscle relief. Next to the shoulders the trophic accent is on the extremities which may be reminiscent of

[9] Urstein, M.: Die Dementia Præcox und Ihre Stellung zum Manisch-Depressiven Irresein. Berlin und Wien, 1909.

[9a] Physique and Character.

acromegaly. The face, from the front, is steep egg-shaped with marked bone-relief and thick, firm skin. The skull circumference is medium, on the average high, narrow, and of a fair medium length. The back of the head is sometimes strikingly steep, sometimes projecting. Sometimes there is a tendency to tower skull. The face in profile is prevailingly heavily boned, with snubbed nose, well-moulded chin and a gently curving profile line. The face is long, the chin usually long.

There are many variations from these specifications and many types are mixtures of the two. He also describes a *dysplastic type* which contains a number of sub-groups indicating glandular anomalies, particularly the dysgenital group.

Mode of Onset.—The early manifestations of dementia precox often go unrecognized for a long time and are diagnosed as other conditions. It must be realized that it may often be quite impossible to make a diagnosis by taking a cross section of the mental state at any time, particularly in the prodromal or initial stages. This is particularly true here as the early manifestations may be acute and transitory episodes which clear up promptly. It is only by studying the life history of the individual that we come to realize that these episodes are but the early manifestations of a chronic process, the tendency of which is toward progressive deterioration.

These early manifestations may take the form of the various types of the manic-depressive psychoses, psychasthenia, neurasthenia, hysteria, hypochondria, acute confusion and paranoid states. In all this class of cases, particularly if atypical, a search should be made for the fundamental symptoms as already described, particularly the emotional indifference and the attention disorders.

In describing the varieties of dementia precox they will be considered under five heads: (1) the *dementia simplex*, or *heboidophrenia* of Kahlbaum; (2) *Hebephrenia;* (3) *Catatonia;* (4) *Paranoid Forms;* (5) *Mixed Forms.*

I. Simple Dementia (Heboidophrenia).

In accordance with the conception of dementia precox outlined above, which regards it as primarily a deterioration upon which various psychotic symptoms may be engrafted, this variety would

constitute the typical, fundamental form of the disease, showing the development of the deterioration per se, with few if any of the extraneous symptoms found in abundance in some of the other forms.

The origin of this variety is insidious, and it may be quite impossible to fix its date, largely because at first the beginning symptoms were not appreciated at their true value. The young boy, or girl, as the case may be, quite commonly was, previous to the onset of symptoms, getting on nicely in school, perhaps unusually well, was quite a favorite with the other pupils, took an active interest in school life, and was going on with the young people of the neighborhood, being in every way considered a bright and normal child. The fire may have burned very brightly but it was built of straw.

At first the patient begins to show a lack of interest in things, ceases going out and associates less and less with other children. There is a general listless, apparently lazy and tired-out attitude towards life assumed, lessons are neglected and not learned, and in school the patient shows a failing ability to assimilate new facts —to acquire knowledge.

This state of affairs is associated with insomnia and often headache, sometimes hysteriform attacks, and not infrequently is mistaken for neurasthenia, or, if the patient is quite inactive, this inactivity is taken to be an expression of the depression of melancholia.

Transitory delusions may occur, which are fully expressed, and fleeting hallucinations may at times occupy the field. These manifestations are usually disagreeable, voices are heard saying disagreeable or insulting things, visions of the devil occur and the like.

Not infrequently these patients show themselves to be quite irritable, and partly as a result there may occur transitory excitements. If, in addition, peculiarities of conduct and strange habits develop, the desire to be alone, some mannerism, or slight evidences of muscular tension and the simpler manifestations of negativism, the close relation between these and the more frequent and more fully developed varieties is shown.

It is in this group that we find the mild and abortive forms that being arrested give one the impression that the peculiarities of the individual are inherent character anomalies. Not a few crimi-

nals, hoboes, prostitutes, pseudo-geniuses, cranks, and eccentrics if their history could be accurately traced would show an episode of distinct precox coloring which separated a period of relative efficiency in their lives from a following period of relative inefficiency.

A study of this class of cases shows quite frequently that the patient's resort to a hobo type of existence has been the result of his inability to adapt himself to the ordinarily complex conditions of social life, in other words, that he has slipped from under all responsibilities and all conditions which involved continuity of effort and industry. He goes from one position to another unable to fulfill even the simpler duties because of his lack of continuity and interest. Such cases will show the history of a mild attack, with perhaps the development of a dilapidated and incoherent delusional system which subsides and remains dormant when the patient gets away from stress. Such patients, when they find themselves under conditions of stress that they cannot escape from, as for example, following enlistment in the military service, quite frequently break down and have to be sent to a hospital.

II. Hebephrenia.

This form of dementia precox is usually of more abrupt onset than the last, although here we may also find that the prodromal period extends over several months, during which time the patient suffers from insomnia, headache, anorexia, and perhaps some loss of flesh.

The symptoms of the onset of the attack are quite generally confusion and symptoms of depression which have an outward semblance to the symptoms of a depression.[10] The characteristic retardation of manic-depressive psychosis is, however, absent, and hallucinations and delusions occupy a much more prominent place in the picture. These hallucinations are numerous and in-

[10] In the last edition of his Psychiatry Kraepelin describes two depressive types, viz., simple depression or stuporous deterioration, and depressive deterioration with delusion formation. He retains dementia simplex, catatonia, and the paranoid forms (with certain variations) and describes the rest of the precox group under these two depressive heads, a form of "silly" deterioration, corresponding closely to the hebephrenia of Kahlbaum and Hecker, certain circular, agitated and periodic types, and finally a form of speech confusion.

volve more especially the auditory and visual fields. Both hallucinations and delusions are disagreeable. Voices are heard calling vile names and accusing the patient of immoral practices; delusions are self-accusatory and in harmony with the depression, the patient thinks he is lost for having masturbated and the like. In this condition violent attempts at suicide are not infrequent and only go to add force to the diagnosis of melancholia so often made at this stage of the disease.

After the active symptoms of the first stages are passed the underlying and fundamental defect becomes more apparent. The hallucinations are fleeting, the delusions not firmly fixed but changeable and fantastic or silly in content, though often with a paranoid tinge; thus one patient believes the sheets stick to his feet, another that this is the "wandering planet." These delusions are not supported by reason or logic, and seem not to have been at all assimilated to the mentality of the patient. They are false ideas, disconnected from the general content of thought and existing much as do foreign bodies in various anatomical locations.

The following extract from the history of an old case of precox of the hobo type shows well the looseness of the train of thought, the weakness of judgment shown by the insufficiency of the reasons given for certain conclusions, and the indifference shown by making no effort to explain or understand what would appear to be remarkable occurrences.

Two years ago he went back to the Old Country to see his family. On his way back to Arkansas he says President Roosevelt was on the same train with him, and that the President made him give up his seat. He knew it was Roosevelt because he looked like a man by the name of Rosenthal who owned a hardware store in Batesville, Ark. Patient states that while alone on the farm he read the Bible a great deal, as well as books about spirits; that through their perusal he learned he had become baldheaded and had rheumatism, and had strained his back. As the result of the will of Martin Luther, acting through some mortal, he said his neighbors would keep his cattle, hogs and horses from coming home at night; that the stock became poor and everything seemed to go against him. At night he was troubled by someone who punched him and kept him awake. He was not relieved of this annoyance until he put a piece of money in his shotgun. He recalls seeing two stars travelling toward each other, one from the south pole, the other from the north, and the next night there were seven stars arranged about the moon. He did not know the significance of these phenomena. About the middle of February he said he was playing cards with a friend whom he asked who

was elected President. The friend told him that there was no one on the ticket. Patient came to Washington a little later (March 1, 1909) to see if he could not secure the position of President, and also to ask Roosevelt what was meant by making him give up his seat on the train two years ago. On arriving in Washington patient went to the Capitol and inquired about getting a room, told of his troubles with Roosevelt, and was immediately turned over to the Police Department.

The emotional deterioration is prominently in evidence. One patient says enemies are following him, and that he has been killed a number of times; another that the other patients are trying to injure him. These facts are told with no show of emotion, in a decidedly matter of fact way.

In the cases that are not profoundly deteriorated a certain *looseness of the train of thought* is noticeable. One patient tells me that he has been ordained by the Lord to preach—that we are all put here to do the best we can—that the bread in the hospital is impure—that he enlisted on a certain date in a certain regiment —that when he first came to the hospital he was not well in mind or body, etc. This superficiality resembles flight of ideas, but there is none of the pressure of activity of manic-depressive psychosis, and while the changes in direction of the train of thought are abrupt, they are not sudden, and the degree of incoherence is much greater. The speech is deliberate and there does not appear to be any distractibility. The condition is due rather to *loose connection* between the elements in the train of thought and to *poverty of ideas.* In some of the more excited phases of dementia precox we do find a close resemblance to flight of ideas and these patients are often difficult to differentiate from manic-depressives.

These patients, like the cases of heboidophrenia, often exhibit peculiar habits and mannerisms—a tendency to repeat certain phrases, suggestibility, unusual attitudes, or a certain muscular tension, shown by angularity, clumsiness, and restraint in their movements. Among these symptoms is often noted a silly laugh which is frequently developed while the patient is talking to himself, but which may occur at any time with absolutely no apparent cause. If the patient is asked for an explanation of why he laughed he will reply in a characteristic manner, " I don't know," or else give some shallow, wholly inadequate, or manifestly false reason. These various symptoms, with the exception perhaps of

the silly laugh, all go to show the fundamental alliance between this form of dementia precox and the catatonic variety next to be described.

In conduct these patients usually exhibit a condition of listlessness, apathy and disinterestedness with little tendency to activity or to emotional expression. Alternating conditions of depression and excitement may and often do occur and occasionally the disease is ushered in by an excitement which may lead to a diagnosis of mania, as the opposite onset we have seen may lead to a diagnosis of melancholia.

The alternating conditions may be very mild as in the case of the young soldier before mentioned, who thought he was ordained to preach and that the bread was impure, who will be quiet for several months and then exhibit the opposite condition for a few days by following the doctors and nurses about the ward telling them his troubles. On the contrary, the alternations may be between conditions much more extreme as in the case of a patient who alternates between a state of stupor and a state of excitement, in which he eats paper, strings, sticks, and bedecks himself with all sorts of trash he collects for that purpose, at times becoming violently angry and cursing every one. This more marked alternation is, however, somewhat more characteristic of catatonia.

In these excited conditions in cases in which dementia is well marked the form of thought becomes greatly deranged, and there is a high grade of incoherence amounting to *confusion* of thought and the speech shows absolute incoherence, a mere jumble of words expressing only fragments of ideas. A veritable word-salad (*Salade de mots* of Forel), often with *neologisms*.

The following is a stenogram from such a case. Note the neologism prestigitis:

"How old are you?" "Why, I am centuries old, sir." "How long have you been here?" "I have been now on this property on and off for a long time. I cannot say the exact time, because we are absorbed by the air at night, and they bring back people. They kill up everything; they can make you lie; they can talk through your throat." "Who is this?" "Why, the air?" "What is the name of this place?" "This place is called a star." "Who is the doctor in charge of your ward." "A body just like yours, sir. They can make you black and white. I say good morning, but he just comes through there. At first it was a colony. They said it was heaven. These buildings were not solid at the time, and I am positive this is the

same place. They have others just like it. People die and all the microbes talk over there, and prestigitis you know is sending you from here to another world." "Do you know what year this is?" "Why, centuries ago." "Do you know who discovered America?" "Yes, sir; Columbus." "What year?" "1492; they have had several discoveries since then, sir." "When was the Civil War?" "That was in 1864-1860-1864." "Who was the President of the United States at that time?" "Well, let me see; they make you over again, sir." "When did you enter the army?" "I entered the army, why it was centuries and centuries ago; not I but a body just like my remembrance around 1903." "Were you ever in Cuba?" "Yes, sir; I was there three times. That was centuries ago; not I but my remembrance, because I have been killed; yes, I have been killed, I am positive of that. Over there originally—originally means first—they remake us. There are other stars like this. I was sent by the government to the United States to Washington to some star, and they had a pretty nice country there. Now you have a body like a young man who says he is of the prestigitis." "Who was this prestigitis?" "Why, you are yourself. You can be a prestigitis. They make you say bad things; they can read you; they bring back negroes from the dead."

III. Catatonia.

Like the other forms of dementia precox which have been described this form is usually a subacute or chronic onset, being preceded by symptoms of insomnia, confusion, headache, loss of appetite, emaciation and the like. The disease, on the contrary, is sometimes of sudden onset, in which case it is apt to be the result of a suddenly depleting cause like the loss of blood or some severe emotional shock or fright. In these cases the patient may become at once profoundly stuporous.

The initial stages are usually marked by a mild grade of depression, as in other forms, giving the appearance of melancholia. Hysterical attacks and in some cases epileptiform convulsions may occur during this period.

Following the more or less vague symptoms of the prodromal period occur the typical symptoms of the disease which group themselves into two stages which irregularly alternate, viz., *catatonic stupor* and *catatonic excitement.*

In *catatonic stupor* the principal symptoms are *stupor, negativism* and *muscular tension.* In the extreme cases the patient lies perfectly still, without making any movement whatever and not reacting at all to stimuli. No attention whatever is paid to questions, absolute *mutism* being the rule, while sensory stimuli

of very considerable strength may be applied without eliciting any response.

The mutism is one of the manifestations of *negativism* which usually shows itself in various ways. The patient not only refuses to eat, but pays no attention to the calls of nature, permitting the bladder and rectum to become overloaded with urine and fæcal matter, often to a serious extent; he likewise allows the saliva to collect in his mouth for hours at a time until putrefactive changes have occurred, and then only perhaps as a result of insistence by the nurse belches forth this mass of stinking fluid. Any effort to get the patient to do anything is immediately met by a response diametrically opposed to the desired act. If asked to show the tongue the lips are tightly closed; if asked to open the eyes they are closed, if already open, or, if closed, the lids are pressed more tightly together by the orbicularis.

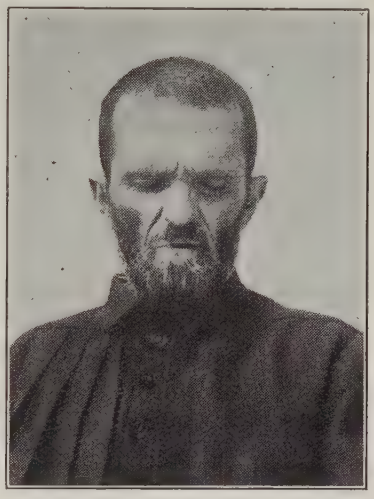


FIGURE 9. Catatonic schizophrenia in a man forty-eight years old: the typical facial expression of negativism. The withdrawal from the world of reality. Note the tension in the facial muscles.

Attempts to move the body are met by marked resistance and elicit the condition of *muscular tension.* The limbs are quite rigid, often stretched out stiffly, the fist perhaps tightly clenched, or, again, the extremities of the body as a whole, perhaps, may rigidly occupy some peculiar position. This muscular tension is often shown in *grimaces,* certain facial muscles continuing in contraction and giving strange and peculiar expressions to the countenance. Thus we find that the patient maintains a constant expression of scowling, or keeps the eyes tightly closed, the cheeks puffed out, or perhaps the lips closed and protruded, producing the condition called by the Germans *"Schnauzkrampf."*

Quite the reverse of this picture of negativism and muscular tension is seen in other cases. In the place of muscular tension

FIGURE 10. Characteristic rigid bodily attitude in catatonic dementia precox. Note the posture of the head, the semiflexion of the arms and the clinched hands.

we find a condition of remarkable flexibility, so that the limbs may be molded into any position desired, and though quite unusual, they are maintained there indefinitely—*catalepsy*—if raised, until gravity and fatigue cause them to fall. This condition is known as *flexibilitas cerea* (waxy flexibility).

With this condition is also found the opposite state of negativism, namely, *suggestibility* or *command automatism*. Patients in this condition do mechanically just what they are told. This state of heightened suggestibility may be so marked as to produce *echolalia*—a repetition of words and phrases spoken to them, and *echopraxia*—a repetition of movements in their presence. These symptoms are often noted during the examination, when it is observed that the questions of the examiner are repeated by the patient—in whole or in part—and that also many of his movements may also be repeated, such, for example, as looking at his watch, putting the hand to the face, and the like.

FIGURE 11. Facies of acute catatonic excitement: Note oral tension and expression of fear in the eyes (the patient, an American Indian, was discharged as recovered after a short mental illness).

In *malignant stupor* reactions there are, in addition to the fundamental symptoms of benign stupor, limitation of energy, emotion, and ideational content (see benign stupor), indications of fan-

tastic thoughts, displacement of affect, anomalous symptoms such as inexplicable giggling and outbursts of rage, delusions other than ideas of death and speech that is quite scattered, in short inconsistencies in the stupor reaction and the inclusion of schizoid characteristics.

The condition of catatonic stupor alternates with *catatonic excitement.* Here we find symptoms manifesting themselves by activity as opposed to the general condition of passivity or quiescence in the stuporous patients.

The marked cases of catatonic excitement are constantly talking, shouting, throwing themselves about on the bed, and generally manifesting a condition of increased psychomotor activity, reminding one very much at first of the manic stage of manic-depressive psychosis. The actions are, however, much more absurd, not directed consistently to any end, quite incoherent and often interrupted by attitudinizing, hysteriform attacks and stereotyped movements—the patients repeating over and over again certain motions, such as swaying the body backwards and forwards, nodding the head, swinging the arms or certain other motions characteristic of the patient and which have no apparent significance. These motions are often accompanied by some sound, such as a grunt or blowing sound, or by the continuous repetition of some phrase.

Verbigeration, often associated with senseless rhyming, is quite common. The following is an example:

"What is your name?" "How old are you?" "About thirty." "How long have you been here?" "A couple of years." "What do you do most of the time?" "Fold shirts in the laundry and mend the clothes." "Do you talk to yourself?" "I do not talk to myself; talk to other people, also talk to all the people I run across." "What do you talk about?" "Talk about the weather, etc." "What is that you say to yourself?" "Locks and keys, keys and locks, locks, keys, keys, locks, locks, locks, keys; just a sort of doggerel [perseveration]. You know some of the attendants might get hold of me and punch me. Locks, keys, keys, locks, locks, keys, keys, locks. You know if they was to run across me making too much noise they might hurt me." "What do you say locks and keys for?" "Just to enjoy myself. You know there are times when there is nothing doing, and I have to do it to pass away the time, and you might just as well say something as nothing." "What did you say the other night to the students?" "Told them about locks and keys." "What else?" "Myriads of us keep growing in numbers, also in largnesses; locks and keys, keys, locks, locks, keys, keys, locks, locks, keys, keys,

locks. Myriads of us quick-foot full through, ev-er no mat-ter. Locks, keys, keys, locks, locks, keys, keys. Myriads of us ev-er full us as keep lives giant's growths, ev-er lives giant's keeper, ev-er no mat-ter. Locks, keys, keys, locks, locks, keys, keys, locks. Lives giant's wealth, health and pleasures, ev-er no mat-ter. Lives sweet foreigners, ev-er no matter." "Can't you recite some more poetry?" "I cannot give any more; locks, keys, keys, locks, locks, keys, locks. Me don't know any more; locks, keys, keys, locks, locks, keys. I will get in trouble. I have been raking away at it outside and in and inside out again. I have tried to write poetry, but could not write any more than six fools."

The noisy incoherent talk of these cases might readily be thought to indicate flight of ideas but the incoherence is much greater than that found with an equal grade of agitation in manic-depressive psychosis, and there is no trace of a guiding thought in the form of a goal idea. The patient, too, does not show distractibility to the same extent, being, on the contrary, quite inaccessible, paying no attention whatever to what is being said or done by others, not even making any pretense to answer questions, though often repeated.

This illustration shows well the *perseveration* in the field of speech. A single motor impulse gets the field and holds it; the same word or phrase is repeated over and over again. A quite similar disturbance is seen in the various types of *stereotypy*. In the speech field this manifests itself by a tendency to the use of set, unchangeable sentences. One of my patients whom I met every evening on leaving my office used invariably to say: "Doctor, I wish you would go to the city with me this evening, have the electricity shut off, and those parties arrested." This sentence for months was never varied by a word or intonation and was elicited every time I came within speaking distance. Later the last phrase was left off and then the abbreviated form was continued as the other had been. There seems to be a sort of coagulation of the motor reactions; they are not fluid. The same thing occurs in other motor fields.

Quite characteristic of this condition, too, are the *impulsive acts* of these patients. They will suddenly and with absolutely no warning whatever commit some act of violence, such as assaulting another patient or breaking out a window, and quite as suddenly lapse into their previous state. It is quite impossible to get any adequate information as to the cause for these acts. The

patient is inaccessible to a degree and either gives some senseless reply to the questions asked, a puerile reason, perhaps, or retires behind an "I don't know" or complete silence. These attacks come out of the clear sky, cannot be foreseen, and make these patients at times very dangerous.

In the milder cases of catatonic excitement, in which the motor excitement is not so pronounced, the patients are quite commonly characterized by the development of certain habits of action in some definite particular. These peculiarities are known as *mannerisms*. One patient must slide the right foot backward and forward before beginning to walk, another holds the fork in a peculiar way, another walks close to the wall, not coming out into the center of the ward, another carefully avoids stepping on cracks in the sidewalk, and so on indefinitely.

The following extract from a case record shows the development of many characteristic catatonic symptoms:

Male, æt. 19. Sometime in the early part of September, 1910, after he had been on an alcoholic spree, he returned to the ship and thought he heard his shipmates making remarks about him and saying they were going to throw him overboard. He left the ship and went to the police station at Newport and asked the police to lock him up; the next morning the master-at-arms came after him and he was locked in the brig of the ship. He still had auditory hallucinations and thought he could hear his mother and little brother talking to him; was kept several days in the Naval Hospital at Newport under observation. He slept little, and felt very nervous. Was admitted to this hospital September 30, 1910. Upon arrival here, he wanted to see a priest—said he was going to die, that he heard people saying they were going to shoot him, said he felt awful scared, and everybody seemed to think he was a spy here.

In October, 1910, visual and auditory hallucinations were the most prominent feature of his case. Voices told him to get out of bed and remain out. For a time he did not eat, saying something prevented his swallowing; again he could not breathe; something closed his nose; his bowels were obstructed and urine was retained; saliva was allowed to accumulate in his mouth. While in bed, he assumed a constrained position; his head was held from the pillow without effort; his facial expression was one of dazed confusion. He was disoriented for time, place and person, said he was not insane, but knew that every one around him thought him so. He had a marked condition of flexibilitas cerea. When in bed, his head was frequently raised in turtle-fashion without the support of a pillow. About February 1, 1911, patient began to improve progressively. At that time he was up and dressed and about the ward, talked more freely concerning the past experiences, associated quite freely with the other patients, asked for

the privilege of doing some work, and rendered quite efficient service in the ward work. His insight at that time was incomplete and imperfect.

Physical Symptoms.—The physical symptoms of catatonia are much more prominent than in any other form of dementia precox.

Slight differences in the size of the pupils are common. Pupillary unrest (hippus) is sometimes observed; quite frequently a marked degree of mydriasis is present, while the phenomenon of Piltz is sometimes found. The tendon reflexes are usually exaggerated. The cutaneous sensibility is lowered. Vasomotor disturbances are often seen, giving rise to cold, cyanosed extremities in the stuporous cases. With this condition may be associated dermographia. The secretions are disturbed, the sweat and saliva may be increased, the urine scanty or increased, and constipation may prevail. Loss of weight is common in the active stages of this disease.

VI. Paranoid Forms.

There has been a great deal of discussion as to just what cases should be properly included under this heading. It is inevitable, as long as the paranoia concept itself is so poorly defined, that the paranoid forms of mental disease should also be difficult to classify.

The fundamental fact is that, in dementia precox, cases presenting paranoid syndromes—delusions of persecution or grandeur, somewhat systematized, with perhaps hallucinations of hearing, are found.

The difficulty is that some writers object to the inclusion of certain forms in the category of dementia precox, others question the propriety of the inclusion of the same forms under the head of paranoia. Many authors, for example, definitely include Magnan's *délire chronique* as a form of paranoid dementia precox.

If dementia precox is to be considered as fundamentally a deterioration psychosis, then symptoms of deterioration associated with the paranoid syndrome are to be expected. In the last edition of his Psychiatry Kraepelin, however, has included only two paranoid types, a mild and a grave, and has removed the group of dementia paranoides as well as all other cases which show a disturbance preponderantly in the intellectual field and fail to show the affection of the will and affect with the serious

dilapidation of the personality characteristic of precox, to a new group which he designates *paraphrenia*. This group he splits up into four divisions as follows:

1. *P. systematica.*—This practically includes Magnan's *délire chronique* except that well defined but mild precox deteriorations are not excluded.

2. *P. expansiva.*—Occurs only in women and is characterized by an exuberant megalomania with predominantly exalted mood and slight excitement.

3. *P. confabulans.*—Here the delusional system, presenting both persecutory and grandiose components, has its foundation in memory falsifications.

4. *P. phantastica.*—In this group the patients show a luxuriant growth of highly extraordinary, disconnected, changing delusions. This group covers essentially the cases previously described by KRAEPELIN in the group dementia paranoides.

The difficulty of differentiating the conditions in their early stages is often very great if not quite impossible. Since paranoia is no longer considered to be a purely intellectual disorder its early stages are known to be marked by emotional depression. This same condition of emotional depression in the prodromal period of dementia precox is found. If, then, a boy eighteen or twenty years old has a fairly well organized delusional system and is somewhat depressed, showing little evidence of intellectual impairment, perhaps only a desire to seclude himself, with an apparent inability to apply his mind consistently to any end, it is difficult to know whether an incipient paranoia or a dementia precox is in the making.

When, however, a patient gives a history of a comparatively acute onset, with the usual symptoms of insomnia, depression, loss of appetite and some emaciation; and an examination reveals a loosely organized delusional system, the delusions of which are numerous, fantastic and often changeable, associated with numerous fleeting hallucinations, such a patient is to be regarded as a case of dementia precox (KRAEPELIN). This diagnosis is especially warranted if in addition to the above symptoms evidences of muscular tension, stereotypy, verbigeration, automatism, mannerisms, suggestibility or negativism are found, these symptoms, as has been pointed out, being found in all the varieties of dementia precox in varying degrees and combinations, and seeming to show,

as does dementia, the underlying unity of the several different forms.

In some of these paranoid forms the hallucinations play a very prominent part; in others they have less significance. The delusions are not infrequently of a grandiose nature and such patients often decorate themselves very lavishly with all sorts of ornaments and insignia, usually made by themselves. They are the patients that are known as *fantastic paranoiacs.*

The following extract from a case record shows a characteristic type of delusional formation in a paranoid patient:

Male, æt. 32 years. On admission to this hospital the patient was well oriented in all spheres, showed no clouding of consciousness, was neat in appearance and tidy in habits, took a normal interest in his surroundings, assisted with the ward work, and adapted himself readily to his new environment. He showed no disturbance emotionally as a rule, but when the subject of his sojourn here was broached, he worked himself up into a slight passion. He gave evidence of being slightly suspicious, and on one or two occasions exhibited delusions of reference. He elaborated a fairly well organized system of persecutory delusions in which many people were involved, among these, some high officials in the Army and Navy, and this delusional system took its inception in the latter part of 1908, while the patient was a member of the Seamen's Gunners' Club at Washington, D. C. He claims that the first trouble started through the instigation of certain false accusations by fellow Masons, that the men at the class tried in every way to make life miserable for him, that he had heard them call him various unmentionable names, with a view of blemishing his character. On one occasion they administered to him an overdose of iron, quinine and strychnine, on another, they tried to poison his food. They refused to eat with him at the same table, had detectives watch him, etc. He says back of all this stood some high officials of the Navy and Army, that he saw one of these give the sign to the other man to torture the patient, that the reason these officials had them persecuting him was the fact of the patient's invention of some dirigible aero torpedoes with proper detonators, and these officials stole the patent from the patient and then sold it to the combination of three European countries; and it was to their interest to get rid of the patient in some way in order that he should not expose them, as he had knowledge of this treasonable transaction.

V. Mixed Forms.

As previously mentioned the several forms described are not always clean-cut. The simple, hebephrenic and paranoid often present symptoms that are more characteristically developed in the catatonic. These mixed forms are in reality very common indeed and in fact almost constitute the rule. Besides the forms

already mentioned KRAEPELIN describes a *simple depressive dementia,* a *delusional depressive dementia, circular, agitated* and *periodic* forms, and a *confusional speech dementia* (*schizophasia*).

Course and Prognosis.—The simple and paranoid forms are the slowest of evolution and almost chronic in course, the paranoid forms often remaining in statu quo for two or three years. When the paranoid precox deteriorates it is because his compensation breaks down. The hebephrenic and catatonic forms are more acute in onset and course, leading more rapidly to dementia in the majority of cases, although the catatonic form has rather the better prognosis. A certain few cases show a tendency to recur with sufficient regularity to result in a periodic course, but those which follow the scheme of a circular psychosis and recur with regular periodicity probably belong to the mixed forms of manic-depressive psychosis and dementia precox, manic-depressive attacks released by the schizophrenia.

Remissions occur especially in the catatonics. According to KRAEPELIN, 8 per cent. of the hebephrenics (including the group of simple dementia) and 13 per cent. of catatonics make practical recoveries, but some of these cases relapse. The paranoid cases do not get well. The tendency of all forms is to a gradually deepening deterioration.

ZABLOCKA[11] in a study of 515 cases found that 60 per cent. proceeded to light, 18 per cent. to medium, and 22 per cent. to severe dementia. The cases which develop in persons with the "shut in" type of character show the worst outcome.

KÖLPIN[12] in a study of 100 cases tabulates his results as follows:

	Earliest Beginning	Latest Beginning
31 Hebephrenia	14	38
30 Catatonia	17	48
39 Paranoid	16	51

and comes to the additional conclusions regarding the above forms of the disease. The hebephrenic form results in simple dementia in a few cases. There are only rarely remissions and

11 Zablocka, Marie-Emma: Zur Prognosestellung bei der Dementia præcox, Allg. Zeit. f. Psych., Bd. LXV.

12 Kölpin: Über Dementia præcox, insbesondere die paranoide Form desselben. Allgemeine Zeitschr. f. Psychiatrie, Mch., 1908.

the course is generally continuous, with increasing dementia. Only the severe grades and the dependents get into the asylum. The onset is more insidious in women than in men. In the catatonic form the onset is acute or subacute. A half of the cases begin with depression, a quarter begin with excitement. There are more often remissions in this form than in hebephrenia. The beginning of the paranoid form is more or less chronic. In four of the cases studied the origin was acute or subacute. The results in this form are:

(*a*) Systematization of delusions with many hallucinations. These hallucinations may be wonderful, etc. (fantastic paranoia). These cases are not numerous and do not present much defect.

(*b*) The commonest form, the building of a poor system of delusions, which earlier or later comes to a standstill. There is depression and irritability and not much defect.

(*c*) The delusions are loosely organized, disappear or become confused or are in great numbers and are fantastic. There is no increasing dementia, irritability decreases and the patient becomes comfortable, stupid, confused, then productive with word salad.

The question whether a cure in the sense of a restitutio ad integram ever takes place is still a mooted one, some observers claiming that every case of remission will show defect if examined with sufficient care. Mlle. Pascal[13] speaks of abortive cases beginning with pseudo-neurasthenia. These abortive cases and the cases of remission in the early stages show defects only of mild degree and largely in the higher faculties. Many of these cases go to swell the ranks of the criminals, the prostitutes, and the hoboes, and are often mistaken for cases of feeblemindedness. Wilmanns[14] in a study of 127 vagabonds found that 66 could be classified as dementia precox.

Diagnosis.—The diagnosis of dementia precox, while comparatively easy in the well defined and advanced cases, becomes a matter of great difficulty in certain instances.

Certain forms of manic-depressive psychosis present characteristic difficulties, particularly the mixed forms. Here it is often necessary to find a history of repeated attacks without deteriora-

[13] Mlle. Pascal: Les rémissions dans la démence précoce, Revue de Psychiatrie, 1907.

[14] Cited by Mlle. Pascal.

tion in order to feel sure that it is not dementia precox. The depression, which so frequently occurs as an early symptom in precox, may readily be mistaken for the depression of the manic-depressive psychosis, the retardation of this psychosis being very similar in its outward manifestations to the negativism, the antagonism, the inaccessibility and particularly the lack of interest of the precox patient. If there are delusions, however, the manic-depressive is more apt to have delusions of a self-accusatory type, while the precox type is more likely to have delusions of a grotesque character, and to refer the origin of his delusions to causes outside of himself. The pressure of activity of the manic-depressive has outward similarities to the excitement of the catatonic. In the former, however, the activity, although rapidly changing in its object, characteristically is addressed to some particular purpose, while with the catatonic the activity is more diffuse and has less direction. It is incoherent.

Paraphrenia expansiva may closely simulate the manic phase of manic-depressive psychosis as the patients are constantly joyous, accessible, talkative, and no profound deterioration takes place. But this is one continuous process, there are no depressions, the excitements are relatively slight, while the delusional ideas occupy the foreground and the patient does not get well.

LANGE[14a] has recently undertaken a study of material of the Münich clinic for the purpose of discovering the reason for wrong diagnoses of those cases of mania which later turned out to be schizophrenia. He believes he is justified in saying that among those pictures which showed many manic phenomena and from superficial observation would be regarded as manic, but which later terminated in schizophrenic deterioration, only extremely few were entirely free from schizophrenic features (see p. 163).

In the early stages the mild depression of the precox may simulate that of the neurasthenic, or the agitated depression may simulate that of the anxiety neurosis. In both instances the precox is more apt to show grotesque delusions and conduct disorders of a bizarre nature, such as tearing up his clothes, mutilating himself, or, on the other hand, characteristic negativistic symptoms, such

14a Lange, J.: Periodische, zirkuläre und reaktive Erscheinungen bei der Dementia praecox. Zeitschr. f. d. ges. Neurol. u. Psychiatrie, Bd. 80, H 1/2, 1922.

as retaining the saliva or the urine, withdrawing from all efforts to do for himself, refusing to coöperate in changing his clothing, the refusal of food and the like.

The epileptiform and hysteriform episodes may lead to a diagnosis of epilepsy or hysteria. It must not be forgotten, however, that it is possible to have precox complicated with epilepsy, and that many of the symptoms of precox, if taken in their cross section without a study of the life history of the individual, are distinctly hysterical in character.

From the infection and exhaustion psychoses the differentiation is characteristically extremely difficult at the height of the attack, and it is necessary in such patients who are suffering from a distinct type of infection such as typhoid, and who present distinctly precox symptoms, to wait until the subsidence of the infection to see whether the case clears up, as it will if it is merely an infection psychosis. Great care should be exercised in offering a prognosis in these cases. Many of the so-called cases of puerperal insanity are really cases of precox which have been precipitated by the circumstances of the puerperal period, loss of blood, prolonged labor, infection or the mental stress incident to an illegitimate pregnancy particularly.

From paresis the differentiation can usually be made definitely by the Wassermann reaction of the blood serum and the cerebrospinal fluid, for both of which it will be positive in paresis, and by an examination of the cell content of the cerebrospinal fluid which will show an increased cell content and quite characteristically the presence of one or more plasma cells in the field.

From the toxic psychoses, particularly from alcoholic deterioration, the differentiation is often quite difficult. It must be borne in mind in this connection that the relatively healthy man deteriorates very slowly from the use of alcohol, while it is found in the records of precox cases, who have indulged in alcohol, that the deterioration has come on relatively much earlier. In addition to this, it will be found that the amount of deterioration in the precox case is very much greater than could reasonably be explained by the alcoholic indulgences of the patient. When these discrepancies in the history are found we are justified in suspecting that we are dealing with a fundamentally more serious condition than mere

alcoholism. GRAETER[15] in a valuable monograph has called attention to this combination of alcohol and precox, and it is extremely important to bear in mind particularly from the point of view of prognosis.

Oftentimes the question of diagnosis will arise as between an acquired defect due to precox and some form of inherent defectiveness. It must be remembered in this connection that precox may develop upon a defective basis, and that in such case the history will characteristically show the symptoms of this defectiveness, such as poor progress in school, and inability to learn in the various occupations in which the patient has been engaged. The symptomatology itself may also indicate this original defect, as for example the following production of such a patient shows quite clearly the lack of knowledge which comes from lack of education at least, and would lead to the suspicion of an inherent defect.

FIGURE 12. Boy of twenty years with schizophrenia and mental deficiency (Pfropfschizophrenia).

there is signety to vocle word i have the sin i am not edicat every body wall love this sin it will be easy to lorn for you but burden for me i am A labor willen to wark i can do better if my sine is excaped it wall be grate and wondful for the they will love it to it was A puzle to be but not to them Silas Johnson of United States Amicar dont think I am crazy i dont know whethe cristfer clumers was or not.

Pathology—*Neuropathology.*—Recently the way seems to be opening up for something more definite in the pathology of this disorder. ALZHEIMER[16] had been working on the degeneration

[15] Graeter: Dementia Præcox mit Alcoholismus Chronicus. Eine klinische Studie über Demenz und chronisch paranoide Psychosen scheinbar alkoholischer Natur. Leipzig, 1909.

[16] Alzheimer: Beiträge zur Kentniss der pathologischen Neuroglia und ihrer Beziehungen zu den Abbauvorgängen im Nervengewebe. Histol. u. Histopath. Arbeiten, 1910.

products of the nervous tissues and thought he had found distinctive changes and enough to write down dementia precox as an organic brain disease. SOUTHARD[17] described certain anomalies as scleroses which he found in precox brains. These anomalies tend to group themselves in certain regions. The frontal region is often involved and it is interesting to note that he found a cerebellar group of cases corresponding to those presenting catatonic symptoms. His groups roughly correspond to the groups clinically showing most prominently intellectual disorder (paranoia), and motor disorder (catatonic), while the emotional disorders of precox, most prominently seen perhaps in the hebephrenic variety, have been supposed to be due to lesions in certain deep layers of the cortex[18] which have no direct motor or sensory or perhaps associational relations.

The most extensive investigation into the histopathology of the central nervous system in dementia precox that has been made since Alzheimer's time is that of JOSEPHY.[18a] His material consisted of fifty brains, some of which, however, had to be rejected as unfit for study. His control material consisted of the brains of five mentally normal persons, dead of phthisis. JOSEPHY believes that dementia precox is not only a mind disease, but that it is also a brain disease. He comes to this conclusion because of the practically invariable presence of pathological findings. Briefly he concludes as follows:

The brain of precox shows evidences of a disease process occurring in an organ which, so far as can be discovered, was previously healthy. He remarks upon the infrequency of anomalies of development and states that anatomically the process is a purely parenchymatous one without inflammatory component. It is the ganglion cells which are principally attacked. Fatty degeneration, sclerosis, and even cell atrophy are found, while glia proliferation of a peculiar type plays a rôle in rare cases. While these changes are considerable, it is not possible to make a diag-

[17] Southard, E. E.: A Study of the Dementia Præcox Group in the Light of Certain Cases Showing Anomalies or Scleroses in Particular Brain Regions. Am. Jour. of Insanity, July, 1910.

[18] Lugaro, Ernesto: Modern Problems in Psychiatry, 1909.

[18a] Josephy, Hermann. Bieträge zur Histopathologie der Dementia praecox. Zeitschr. f. d. ges. Neurol. u. Psychiat., Vol. 86, Nos. 3 and 4. 1923, p. 391.

nosis with a microscope because they are largely, undoubtedly, end products rather than signs of a process still in a state of activity. The location of the changes was most marked in the anterior portions of the brain, especially in the frontal and temporal lobes and in the third and fifth cortical layers. Changes in the cells of the basal ganglia were found and he believes that disease of the pallidum is somehow related to catatonic symptoms.

Just what relation the anatomical findings have to the mental picture JOSEPHY is unable to state. He is rather inclined to believe, however, that they indicate a toxic condition.

More recently the investigations of FÜNFGELD[18b] have led to similar conclusions. He studied carefully eleven cases, varying from six weeks to thirty-six years in duration and compared them against some twenty brains of patients whose death was due to various somatic diseases in order to meet the criticism that any changes he found in the psychotic brains were dependent upon the disease from which the patient died. The histopathological picture presented by these cases differed so greatly from the general picture presented by the schizophrenic brains that they could be recognized without the slightest difficulty. His findings were briefly: wasting changes in the ganglion cells, particularly in the third and fifth layers, with some changes in the sixth layer, with corresponding glia changes; transitional regressive changes reaching terminal conditions in cases of long standing in which a picture was presented of a combination of the wasting changes with sclerotic phenomena of varying degrees of progression, together with a considerable accumulation of lipoid substance. The lipoid phenomena seemed to first make its appearance in connection with certain stationary wasting forms.

While in the literature it is constantly reiterated that the schizophrenic process closely resembles toxic processes FÜNFGELD says this similarity seems to be only superficial and that he has never in any toxic process discovered anything resembling the picture of schizophrenia in its totality. He believes the most plausible theory to be that of Kleist of a heredo-degenerative origin. It would seem, in accordance with this view, that a primary parenchymatous

[18b] Fünfgeld, E.: Über die pathologische Anatomie der Schizophrenie und ihre Bedeutung für die Abtrennung "atypischer" periodisch verlaufender Psychosen. Monatschr. f. Psychiat. u. Neurol., Nos. 1 and 2, Feb., 1927, pp. 1–68.

degenerative process attacks certain definite layers; there is considerable difference in the degree of injury within these areas and in the different regions attacked; cicatrices, terminal stages, stationary conditions and acute process are found in adjacent areas of the cortex; the exact systems that are vulnerable are not as yet definitely known.

Extraneural Pathology.—If the distinctive characteristic of psychological reactions is that they are *total reactions*[19] as compared to various organ reactions which are therefore partial reactions then it certainly would not be strange if we should find an extensive pathology of mental disease in organs other than the cortex. This is in harmony with certain pretty generally accepted descriptive characteristics of dementia precox, namely, (a) that there is an organic, probably hereditary factor present, (b) that the majority of onsets occur early in life, and (c) the high incidence of pulmonary and other forms of tuberculosis which is the terminal lesion in 85-90 per cent. of cases. When the individual comes to function as a whole the inadequacy of his several parts to the demands made upon them must find expression in the final result, the end product, as expressed in his thinking, feeling, and acting. Lewis's findings in the Saint Elizabeths Hospital material[20] strongly support this view, based upon a study of over six hundred cases. These findings are briefly as follows:

The average weight of the dementia precox heart is one-third less than the normal or average, the small size being independent of race, age, sex, size of body, duration of psychosis, or lethal lesion. It stands out in considerable contrast with the other mental disease groups. The decrease in size is of the nature of an aplasia or arrest in growth since the well known pathologic signs of atrophy are as often absent as present, the valves are normal developmentally and free from lesions, and although occasionally secondary atrophy in the muscle is present the original arrest in growth is indicated by the small aorta with its correspondingly small branches. This type of circulatory system retains its small proportion throughout life and lacks the capacity to develop a true compensatory hypertrophy. The walls of the

[19] I have set forth this view of the nature of psychological reactions in my "Foundations of Psychiatry." No. 32 of this Series.

[20] The Constitutional Factors in Dementia Precox. No. 35 of this Series.

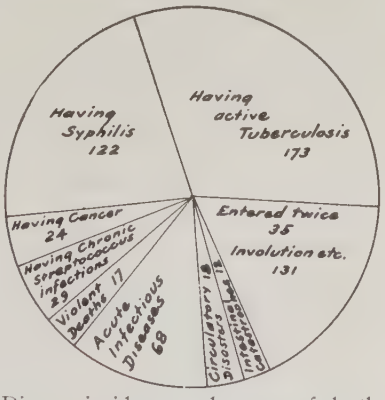
congenitally small aorta are always thin, smooth, free from lesions and usually hyperelastic. This state of affairs along with the widened bed of the lymphatic stream, although not associated with all of the features of the status lymphaticus syndrome, may suggest the larval state of this disorder.

In the gonads he found the same three stages of regressive atrophy described by MOTT and his associates, but differs with them in one respect in that he found no correspondence between the degree of regressive atrophy of the testes and the duration of the mental symptoms, since some of the most profound changes were in the organs of those with psychoses of short duration.

In these cases he has found pronounced alterations in the adrenal cortex to be fully as constant a feature as regressive atrophy of the testes. In general the cortex is thin, the three histologic zones being narrow and ill defined. The stroma is always abundant with definite sclerosis of the zona glomerulos. The medulla does not always share the atrophy, but may be normal or hypertrophied. In 50 per cent. of the cases there was a definite arrest in the cortical development. Accessory adrenals are frequently found in the dementia precox group.

The thyroid gland was found altered in its connective tissue and colloid structures in such a manner as to suggest a functional association with the genital glands. Various degrees of sclerosis with marked losses in colloid, which have been proven to be independent of other factors, is a characteristic finding, and moreover the scleroses do not conform to descriptions of the "senile type" of gland.

The accompanying figure shows the result of autopsies by FREEMAN of cases[20a] with schizoid type of reaction.



Disease incidence and causes of death in schizoid group. Male and female. 559 cases.

Directing attention now to the *paranoid development,* it is obvious that we are dealing with a much smaller group of indi-

[20a] Saint Elizabeths Hospital material.

viduals, and one in which an opportunity is rarely available to investigate the physical components of the condition in its early stages, since these individuals usually live for a number of years, apparently living out the life span and deteriorating late in life, a deterioration which is perhaps slightly presenile in the average case, therefore, when the opportunity comes for a post mortem there is the probability of finding such changes as were once prominent to be partly or wholly obscured by senile changes, however, in a group of cases comprising 18 paranoid developments among the diagnostic appellations of which were paranoid state, alcoholic paranoia, paranoia, and paranoid dementia precox, there were tissue changes quite characteristic of the group differentiating it from seniles and arteriosclerotics on the one hand and from the dementia precox group on the other.

In the first place very few of the paranoids died from tuberculosis and none in the group were seriously affected with this disease, but they do succumb from vascular accidents and so prevalent are these accidents among the paranoids that almost all cases die with cerebral hemorrhage, ruptured aneurysms, or cardiac decompensation. The circulatory systems of these individuals are markedly in contrast with those of dementia precox. The heart weight is greater because of the incidence of compensatory hypertrophy; and also the arterial system as a whole is larger in caliber.

Associated with these compensatory reactions through the circulatory system there was found in the thyroid gland an atrophy with colloid destruction and a fibrosis which is patchy in type, these patches very often alternating with areas of compensatory glandular reaction, frequently to the extent of adenomatous proliferations. In some of the other thyroids of this group there was very little colloid reduction, but very marked hyperplasias with general overgrowth of the epithelioid cells.

The adrenal glands are quite in contrast to the dementia precox cortex, a widened structure which is developmentally large and which later may have undergone secondary disease alterations, but still patches were found of compensatory glandular reactions in certain areas in that there is an increase in the number of cortical acini, sometimes to the extent of an adenoma. The medullary portions were also occasionally hyperplastic.

The gonads showed some interesting features in contrast to the dementia precox testicle so well described by Mott and others, in that they presented areas of tubular atrophy, alternating with normal areas, with hyperplastic tubules, and sometimes with hyperplastic areas of adenomatous nature. Thus it appears that all through the endocrine glands of the paranoid group there are reactions on the part of the tissue to compensate for focal defects probably indicating attempts to maintain a certain level of functional existence. Frequently in the other tissues of those dying in paranoid states we find evidence of compensatory reaction, this being particularly well shown in the tendency to blood vessel proliferation, miliary angiomata, prostatic hypertrophy and carcinomata, and liver cell hypertrophy.

Since the so-called paranoid dementia precox presents the reaction mentioned above it would seem that this type should be placed definitely in the group of paranoid developments and the term "precox" dropped, as this constitution is in no way like that of the hebephrenic and catatonic type first mentioned, where the secondary tissue reactions are regressive in nature and where there is a primary hypoplasia of the circulatory system which is quite in contrast with the compensatory type of circulatory system of the paranoid developments which usually ends in rupture from overcompensation, or in cardiac decompensation.

In contrast to the type of conduct and regression to the autoerotic level of development found in the majority of hebephrenic and catatonic precox states with their aplastic circulatory apparatus and defective endocrine glands are the paranoid compensatory reactions (including "paranoid dementia precox") where there is a better preservation of the personality, an interest in the outside world, more harmony between ideas and mood and less tendency to deteriorate—the tissues of the body participating in this preservation by compensatory growth changes.

Nature of Dementia Precox.—From the discussion of dementia precox up to this point it will be seen that it has certain similarities to the organic brain diseases like paresis on the one hand, and to the more purely functional disorders such as hysteria on the other hand. It would seem to stand midway between the so-called organic and psychogenic psychoses. We see indications of this all through the symptomatology of the disease; we see

manifest evidences of segmental overdomination, especially marked are the oral zone, in such symptoms as salivation; the anal zone in such symptoms as the very marked interest which these patients show in the functions of their lower bowel, and their interest in feces, and the functional disturbances of the gastroenteric tract; the skin area, which is so frequently the object of all sorts of special activities, rubbing, biting, picking, scratching, wounding and of disorders, eczema, pruritides, pigmentation, atrophies, disorders of secretion; the muscle segments, in the symptoms of catatonia, flexibiltas seria; the respiratory zone as seen in the development of pulmonary tuberculosis, and various functional disturbances of respiration, delusions about the breath, the voice. Such groups of symptoms implicating groups of organs and functions are expressed at all the levels, vegetative, neurologic and psychic, and indicate that the regression has gone deep enough to unloose bits of physiological mechanism.

It is allied to paresis, for example, on the anatomical side by its pathology—the degenerations—and on its clinical side by the underlying progressive deterioration upon which as a basis all manner of psychotic symptoms may be erected.

It is allied to hysteria by its frequent apparent psychogenic origin and by the similarity of the psychic mechanisms—the "complex" formation and the symptoms to which it gives rise.

The mental disease with which it stands most closely associated, however, is manic-depressive psychosis.[20b] A review of the opinions concerning the nature of these two diseases (dementia precox and manic-depressive psychosis) discovers that their differences are fully appreciated, yet it is felt that they are held together by strong connecting bonds. Both arise on a constitutional foundation, the manic-depressive psychosis, of the two, being more deeply rooted in the constitution: the physical condition which is suspected of being at the bottom of the two diseases, the endocrine autointoxication, is similar in both, though here it is dementia precox that presents the most severe and distinct signs, to such an extent, indeed, that it assumes the character of an organic disease. Both diseases usually originate in an autochthonous manner from

[20b] Müller, Helmut: Manisch-depressive Irresein und Dementia praecox, ihre Unterscheide und ihre Differential diagnose. Zentr. f. d. g. Neurol. u. Psych., Bd. xxviii.

the inner make-up of the personality, but in both the participation of psychogenic reactive factors have been observed. Both of these diseases usually make their appearance at the age of puberty or again at the involution period.

KRAEPELIN, taking the more material view, puts forward the hypothesis of toxic origin—from perhaps the sexual glands, since it appears so closely associated with adolescence. JUNG[21] sees more the functional origin and would bring in the toxemia to account for the non-recovery. The symptoms, like hysteria, are fixed, as it were, like the photographic plate by the hypo bath. He[22] thinks the affect which causes the complex may set loose a toxin. The affect-toned complex may cause the mental and physical symptoms of a dementia precox in the same way that an infection may follow a physical trauma. Still further light may be cast upon the pathology in this process when one considers the results of persistent unconscious affective states as causing vegetative nervous system disturbances with resultant somatic changes.[23]

Other authors have brought forward still different theories of the disease and indicted other organs. In some quarters there is at present a feeling that the endocrine glands are at fault and many authors believe that some endocrine disturbance conditions a form of toxemia.

Reference to the discussion of the relation of mind and body in Chapter III, where mind is considered as reacting by mechanisms which are both psychical and physical—psychical at one extreme and physical at the other extreme—will indicate how a disorder which is ultimately organic in nature may take its origin in purely mental factors.

It is of great importance, however, to define if possible the psychological differences between hysteria and the psychoneuroses, in which we also see the operation of complexes, and precox.

The superficial and obvious difference seems to lie in the character of the psychic splitting. In hysteria and the psychoneuroses

21 Jung, C. G.: The Psychology of Dementia Præcox, Nerv. and Ment. Dis. Monog. Series No. 3.

22 Bleuler, E., und Jung, C. G.: Komplexe und Krankheitsursachen bei Dementia præcox. Zentralb. f. Nervenheilk. u. Psychiatrie, Heft. 6, 1908.

23 Jelliffe: Vegetative Nervous System and Dementia Præcox. New York Medical Journal, 1917.

the splitting is more massive while in precox it is relatively molecular. In hysteria, for example, the symptoms lead back to actual situations, while in precox they lead back only to fragments. For example:

A young woman—an hysteric—believes that she is dead and that her soul has separated from her body. The explanation is that she is married to one man and loves another. Spiritually she belongs to her lover, physically she belongs to her husband and her body is dead because only in this way can she justify the continuation of physical relations. As a further elaboration of this she has a complete anesthesia.

A precox, while having some difficulty on the ward, has to be restrained and cries out "contract," "contract." It appeared on questioning that on this day the mortgage on his father's farm was due. His father had often had to ask him to help pay it. Patient then spoke of a "four-sided contract burial." It had taken four persons to restrain him. Here it will be seen that the associations are only with fragments of situations. There was no other connection with his trouble except that it occurred on the day the mortgage was due and so a quite superficial association was formed.

A young woman precox says she is related to the Empress of Austria, whose name is Charlotte, because she has a cousin and an aunt by the name of Charlotte, and that she had a scarlet (clang association) dress given her when a child.

Another and perhaps more fundamental difference is that in dementia precox there is a very great restriction in the capacity of the patient to be interested in objects other than himself. Dementia precox is the type of *regression psychosis*. In hysteria on the other hand there is great ability to be interested outside of self, so much so indeed that hysteria is referred to as the type of *transference neurosis*.

This molecular splitting of the psyche I would term the *fragmentation of the psyche* and believe it to be an obvious psychological characteristic of dementia precox at the descriptive level.

The fact is that in precox we are dealing with much more malignant defects of biological adjustment. The defect strikes much deeper and there is marked inability on the part of the patient to form compensatory adjustments or sublimations. Probably both the depth to which the regressive tendencies reach

and the strength of their fixations are factors in determining the grade of malignancy.

The content of the symptoms is determined by the nature of the complexes, their malignancy by the recuperative powers of the patient. For example: the *hebephrenic* type indicates a failure to develop any adequate defenses. The patient frankly expresses delusions and hallucinations of the greatest apparent absurdity. If the process comes to a standstill there is an adjupstment at a relatively low level as for instance the case of a young woman who made a failure of her love life, marriage and motherhood and after passing through a few weeks of confusion and stupor with hallucinations and delusions settled into a fixed stage of regression to the mental state of a little girl of about twelve years of age. She acts like a child, has thrown off all the cares of adulthood and all responsibility for her family and the natural obligations of parenthood.

The *catatonic* endeavors to shut out from consciousness his conflict by a supreme effort at repression. If he gets well it is often at the expense of a large portion of his personality which he cannot assimilate.[24]

The *paranoid,* while not so apt to recover, is able to build a more or less elaborate world of phantasy in which he gets along fairly well. Many philosophies and new religions are given birth in this effort.

The relation of the delusion to the complex is often obvious if one is familiar with the more important of the infantile material. A man believes himself pregnant, that a child is in his stomach. This is obviously a regression to the period when as an infant he had not understood that gestation was a particular function of the female. Another patient enucleated his eye (castration symbol); a colored man of about forty years of age invented a perpetual motion machine (compensation for impotence); a man tries to invent the greatest cannon on earth (compensation for small penis complex); a homosexual man of the "sissy" type made wild claims of physical prowess, fighting ability, and incessantly swore

[24] A study of the muscular tensions, vascular reactions, glandular activities of this condition, in which such disturbances are so marked, along the lines of their meaning as being part and parcel of certain instinctive tendencies, would do much to elucidate the meaning of the symptoms and might also equally illuminate the instincts from the physiological side.

and used vulgar language to demonstrate his toughness (over-compensation of homosexuality); a woman complains that her sister's husband follows her through underground passageways and shoots electricity into her genitalia and anus (anal erotism); an oral erotic woman starves herself in order to be tube fed; oral erotic patients often cut their throats while under the erotic pressure; patients frequently say that God talks with them or go to Washington to see the President (father complex); in severe grades of introversion they sit in a dark corner, head on breast, arms folded and legs and thighs flexed (intra-uterine position); a young woman says her real parents are the King and Queen of Norway (Œdipus phantasy); etc. Of course much of the delusional material is not so obviously related to infantile material and must be worked out at length with the individual to determine its meaning.

More important than just the content of the precox thought is the process of that thinking. When we examine the process we shall find, as in fact we do also with much of the content, that schizophrenic thinking shows startling analogies to the thinking of primitive man. In other words it is *archaic* in character. A reasonably adequate discussion of schizophrenic thinking would require that it be correlated with the principal historic features of the development of thought wherein it would be shown that it throws back to historically earlier ways of thinking in which feeling, perception, and concreteness dominate, while reasoning, differentiation, and abstraction are little in evidence. Storch[24a] gives as the main expressions of this fundamental dynamic disturbance in the thought process, the loss of constancy and definiteness of the structure of the object: the disappearance of the boundaries of the ego, and the abolition of the consciousness of self. The full meaning of the precox type of reaction can only be fully grasped by an understanding of this aspect of the mental symptoms plus an understanding of this extra-neural pathology as set forth in the previous pages.

It must not be forgotten that a precox may have, however, complex reactions exactly like that of hysteria and the psycho-

[24a] Storch, A.: The Primitive Archaic Forms of Inner Experiences and Thought in Schizophrenia. A Genetic and Clinical Study of Schizophrenia. Monograph No. 36 of this Series.

neuroses. To that extent such a patient is hysterical or psychoneurotic.

Treatment.—The treatment must be entirely symptomatic. A careful search should be made in each case for functional abnormalities and for the origin of mental conflicts and correction applied as far as possible.

Many cases will, of necessity, have to spend most of their lives in a hospital. It is therefore desirable to educate them as early as possible in good habits. They should be encouraged to some form of occupation, preferably out of doors. Under the influence of hospital surroundings and farm life these cases may get on very comfortably and the deterioration process be considerably retarded.

It seems probable that one of the best methods of approach to the treatment of these cases would be by the method of reëducation through the agency of industrial training. If this is to be done intelligently, however, it is essential that the patient be not merely put to work in a haphazard way, but that a sufficiently careful analysis of the psychology of his particular condition be made so that it will appear what is the best method of approach to arouse his interests and fix his attention. It is also necessary to bear in mind the motor disturbances, more especially of the catatonic group, because here the education will have to be addressed more or less to restoring certain motor adjustments. The same principles are involved in treatment of this sort as have been long recognized in dealing with the mentally defective. The avenue of approach to the individual must first be worked out before it can be expected that material results will be obtained. In the few cases that have been worked upon in this hospital along these lines the improvement has been prompt, marked, and considerable. Such improvement is of course open to the criticism that it might have taken place any way in the natural course of the disease, and requires further and more elaborate studies to define its possibilities. The principle is to work out an adjustment in the environment that will bring it within the powers of the patient to adapt to. Psychoanalytic investigation is revealing more and more how the possibilities for treatment may be defined.

One of the most hopeful methods of approach to this problem is by a study of the way in which recovery has been brought about in those cases that get spontaneously well. This may teach us

how we can help, and also, what is of equal importance, teach us to avoid doing what will make matters worse. BERTSCHINGER[25] has written illuminatingly upon this subject.

Prophylaxis.—Preventive measures are dependent upon the ability to recognize in the child the possibilities of a future precox. The recent studies of character anomalies as found in the anamnesis of precox patients indicates the possibility of foreseeing this result in a certain considerable number of cases, particularly those presenting the "shut in" type of personality.[26]

While it is customary to consider this disease as hopeless so far as being able to influence it by therapeutic measures is concerned still this pessimistic attitude does not seem wholly warranted even though, in those cases that get better, we cannot define how much of the result has been due to the treatment. The general scheme is to get the patient in as accessible condition as possible to which end occupational therapy, amusements, athletic sports may contribute. Then an attempt may be made along psychoanalytic lines to determine the real difficulties to the end of attempting new adjustments. One reason why this so frequently fails is because others than the patient are involved in the situation and success would mean securing their intelligent coöperation, quite frequently a hopeless task. In those cases, however, where this has been successful the results seemed to warrant the effort. It is needless to add that all the usual therapy should be brought into play as required.

The method of procedure in such cases would be to attempt to overcome the defect present in the particular case by educational and psychoanalytic methods.[27] It would seem that a recognition of the precox character in the child would make it possible to save it from a number of stresses that might prove disintegrating factors. Particularly an open, healthy initiation into the mysteries and problems of sex is important, as this is the rock upon which these cases are often shipwrecked. Protection from undue stresses and a careful education along lines of the development of self-sufficiency in the face of difficulties with a full appreciation of the limits of strength and adjustability is the keynote.

[25] Bertschinger: Heilungsvorgänge bei Schizophrenen, Allg. Zeits. f. Psychiat., Bd. 68, pp. 2. Translated in Psychoanalytic Review, Vol. III

[26] Hoch, August: Constitutional Factors in the Dementia Præcox Group. Rev. of Neurol. and Psych., Aug., 1910.

[27] Jelliffe, S. E.: Predementia Præcox. Am. Jour. Med. Sci., 1907, p. 157.

CHAPTER XII.

The Presenile, Senile and Arteriosclerotic Psychoses.

This grouping together of the presenile, the senile, and the arteriosclerotic psychoses is one for convenience only. These periods of life present many and varied types of psychoses which are incapable of any but a provisional classification. The whole region is extremely complex, and presents a very heterogeneous group of pictures most difficult to classify.

Two things stand out, viz., the preponderance of depressions and the importance of the physical condition. The great number of depressions is probably due to the fact of a failure of compensation at the psychological level. Conflicts which the patients have been able to deal with effectively during the up-hill period of life break through and overwhelm them when the constructive forces begin to fail after middle age. The association of vascular changes, as well as other tissue changes, with this period is responsible for the large dependence of the prognosis on the physical condition and the considerable part played by defect symptoms in the symptomatology.

Figure 13. Photograph of patient fifty years old with depression. Constitutional factors with changes in the skin and blood vessels were prominent.

The Presenile Psychoses.

This period is especially noteworthy because of the great prominence of depressions.

Involution Melancholia.—The term melancholia has been limited to the depressions of later life that cannot be satisfactorily classed with any of the other psychoses, as for instance manic-depressive psychosis.

Etiology.—Melancholia is essentially a disease of the period of involution—forty to fifty years in women, rarely before fifty in men. A considerable number, but by no means all, show the beginning of senile decay—gray hair and the early changes of arteriosclerosis being most noticeable. The menopause seems to be an important etiological factor in women. Heredity does not play as important a rôle here as in some of the other psychoses, being present in only about sixty per cent. of the cases. Marked exciting causes, such as emotional shock, or other conditions of mental stress are unusually frequent. It would seem that this class of causes operating upon a mind under the general stress of the involution period, and perhaps the additional stress of heredity, were the important factors in etiology.

It is coming to be believed that one of the important factors of the involution period is the atrophy of certain of the ductless glands—particularly the uterus and ovaries, the prostate and testicles, the thyroid, and adrenals—and that certain of the disturbances of this period of life are dependent upon an unbalanced relationship brought about at this time between these glands.[1]

Symptomatology.—The disease commonly has a prodromal period of several months' duration. The symptoms of this period are indefinite and are comprised of certain head symptoms, such as pressure, pain, vertigo, together with anorexia, irritability, insomnia, mental insufficiency, a mild neurasthenic state and some emaciation.

This condition becomes progressively worse and the patients develop a morbid fear of impending danger—*apprehensive depression*. The morbid background for this depression is not infrequently *delusions of sin*. All sorts of acts in the patient's past life are reviewed and considered to be unforgivable sins. Masturbation, a petty theft, the failure to carry out the advice of a priest, in fact almost anything may be looked upon as a terrible sin, even magnified into the *unpardonable sin*, and the patient fears his soul is irretrievably lost, that he will go to hell when he dies and suffer its torments eternally.

The fear and apprehension from such causes may be comparatively slight and the patient show no outward evidences of it

[1] Rémond and Voivenel: Essai sur le rôle de le ménopause en pathologie mentale. L'Encéphale, Feb., 1911.

except in conversation. Under these circumstances he is quite often able to put his depression in the background and occupy himself with some form of work. In these cases consciousness is unclouded, orientation is unimpaired, and hallucinations, if present, take a minor place in the symptom-complex. In these cases, even when the depression is considerably marked, the patients are quite capable of seeing a joke and the lapse into a moment of light talk and the smile showing forth from a background of profound depression are noteworthy and characteristic.

If the depression becomes more marked the fear and apprehension graduate into a condition of *anxiety*. The patient goes about wringing his hands, moaning and groaning, perhaps repeating over and over again some such phrase as "Oh, my God! Oh, my God!" "It is a fearful thing. Good Lord help me!" The fear of impending danger is imminent, the patient is lost and is about to be executed. Whenever the physician visits the ward he is believed to have come to carry out the sentence of execution, and the patient begs and pleads to be spared, not to be taken out and butchered, shot, and cut up into little pieces. Reassurances are in vain. The slamming of a door in an adjoining ward is the report of a gun—a patient has just been shot and they are coming for him. One patient constantly repeats "Doctor, will I be done away with tonight?" and "Then will I be here tonight just the same as last night, and will I be here tomorrow just the same as today?" Another patient believes herself very sinful, refuses to eat because the food should be used for others, walks about in an agitated manner picking her fingers and attempted suicide because she was afraid she was to be put to death. These are the cases of *agitated melancholia*.

FIGURE 14. A case of involutional depression of long standing showing a characteristic facial expression of melancholia.

Even in these cases consciousness remains unclouded, orientation is little if at all impaired, and the form of thought is maintained.

Quite a different picture is sometimes presented by patients with symptoms of retardation. The milder cases merely show slow movements, slow response to questions with a low voice and remind one of the depressive stage of manic-depressive psychosis. This condition is not uncommon. More marked cases, however, present mutism, inactivity and resistance sufficient to warrant characterizing them as stuporous. This condition, however, may not be altogether due to retardation but may be the result of delusions—*delusional control*—to the effect that they must not speak, that it is wicked to eat, and the like. The mental condition is one of intense apprehensive depression with delusions and often hallucinations. The retardation in these cases by no means constitutes as important a part of the clinical picture as it does in manic-depressive psychosis.

A still further development of anxiety may lead to a condition of marked and continuous motor agitation with insomnia, refusal of food and emaciation, with marked clouding of consciousness, hallucinations and disorientation.

Confusion.—These are the most exaggerated of the cases of involutional melancholia and lead rapidly to a condition of exhaustion.

In these marked cases of apprehension and anxiety there is quite frequently a considerable amount of precordial distress and tachycardia and often a sense of oppression over the chest with a feeling of difficulty of breathing. These symptoms are apt to appear in attacks, at which times the mental depression is most pronounced. Although suicidal tendencies are frequent in this form of psychosis, it is not necessarily at these times that they are most apt to be exaggerated.

Farrar distinguishes two forms of this psychosis which he quite clearly defines, viz., true melancholia or *melancholia vera* and *anxietas präsenilis,* while he describes a third in which the symptoms are not quite so well marked but are rather of a negative character—*depressio apathetica.*

Melancholia vera in the main is an autopsychosis. The delusions are auto-accusatory, with ideas of sin but with clear consciousness; there is no defect of orientation. The patient believes his soul is lost, that he is to suffer eternal torment hereafter, and about these beliefs there is no doubt, but on the contrary a marked "subjective certainty." There may be some slight tendency to

somatopsychic delusions, insight is defective, and slight anxiety may be present.

Anxietas präsenilis, on the contrary in the main is an allopsychosis. There is a very marked "subjective uncertainty" which gives an unreal tinge to the outer world, and out of which grows the fear of things unknown, culminating in the marked anxiety which is characteristic of this form of the psychosis. Remorse or dread of future are not elements in the depression; on the contrary, it is the great unknown and overwhelming present that seems about to destroy them. These cases occur later in life than the former, show more evidences of senile decay, such as arteriosclerosis, and present such symptoms as verbigeration, rhythmical movements, suggestibility; the prognosis is less favorable.

In *depressio apathetica* there is simply a let-down, a stopping on the part of one who has been leading an active life. Interest abates, the struggle is drawn away from and we have a picture of mild depression with clear consciousness and no disturbance of orientation. There is some "subjective uncertainty" delusions and sensory fabrications play little part. The symptoms are negative rather than positive; the prognosis is relatively good.

The danger from suicide is greater in this psychosis than in any other, and every case of melancholia should be considered a potential suicide. One of the principal reasons that a tendency to suicide is so dangerous a symptom here is that the carrying of suicidal tendencies into action is not interfered with by retardation in the way in which it is in manic-depressive psychosis. In manic-depressive psychosis the suicidal impulse is continuously prevented from expressing itself in action by the ever-present difficulty of the release of motor impulses, while here no such difficulty maintains, and the tendency constantly seeks expression in appropriate action.

The delusional content of consciousness varies widely in this disease. *Hypochondriacal delusions* are quite common and sometimes we find *nihilistic delusions, feeling of unreality,* the patient claiming that nothing exists, there are no people, no world and the like. This is the so-called *délire de negation* of the French. Then, again, we not infrequently find that the delusions take on very bizarre, absurd, fantastic forms, indicative of an underlying defect. This condition may occur early in severe cases or come

later as evidence of senile decay. The same may be said of *delusions of grandeur,* of great power, and the like, except that they usually appear later in the course of the malady but are equally evidence of deterioration. There may be a strange mixture of depressive and grandiose ideas, as with the patient of WEYGANDT,[2] who believed she was going to be roasted in a silver kettle. The deterioration and defect of judgment is well shown here.

WEYGANDT[2] notes the following list of delusions that are found in this psychosis: (1) Hypochrondriacal delusions; (2) delusions of sinfulness; (3) delusions of persecution; (4) delusions of poverty; (5) ideas of unworthiness; (6) delusions of explanation; (7) ideas of insignificance; (8) nihilistic ideas; (9) delusions of possession; (10) ideas of grandeur.

Course, Prognosis and Termination.—As compared with other curable psychoses this can hardly be said to be of good prognosis. About forty per cent. get well. The remaining sixty per cent. terminate in various ways: some by suicide, some by death from intercurrent disease, which in their debilitated state is poorly withstood; some by death from general marasmus or the development of tuberculosis; some lapse into chronicity; and, finally, a certain few improve sufficiently to leave the hospital and get on quite well at home, though still somewhat depressed. A certain number of this last class may get worse under home surroundings and have to be returned to the hospital.

This latter class seem to get on quite well in the hospital, but the minute they attempt to take up the cares of life, to assume the worries of the struggle for existence, they break down. Perhaps their already degenerated vessels cannot adjust themselves to the increased demands made upon them by a more active brain.

Unfavorable symptoms are the development of bizarre, absurd and grandiose delusions implying underlying deterioration, gross anomalies of conduct such as a filthiness and loss of adequate emotional response all indicating a malignant, schizophrenic type of reaction.[3] Marked physical evidences of senility are also of poor omen. A contemporaneous improvement of both the physical and mental conditions is the most favorable sign.

[2] Weygandt, Wilhelm: Atlas und Grundriss der Psychiatrie. München, J. F. Lehmann, 1902.

[3] Hoch and MacCurdy: The Prognosis of Involution Melancholia. Am. Jour. of Psychiatry, January, 1922.

The above statement of the course and prognosis has been thrown very much in doubt by the work of DREYFUS.[4] He made a careful investigation, so far as possible, of the life histories of the Heidelberg material comprising 81 cases in all. Thirty-four (34) cases were personally investigated. Eight (8) were not personally investigated, and 39 were deceased. As a result of this study he concluded that with the exception of 2 cases undiagnosed, 2 cases in which a mistake in diagnosis had been made, and possibly 2 more doubtful cases, that all were cases of manic-depressive psychosis. This conclusion was reached by finding the fundamental symptoms of this disease present. Of these cases 66 per cent. were recovered or recovering at time of death, 8 per cent. developed arteriosclerosis, 25 per cent. died unrecovered, of intercurrent disease or suicide.

Even admitting all these facts it would seem that the involution period, the age factor, colors the picture materially and DREYFUS himself admits the involution cases as a sub-species of the manic-depressive group. There seems certainly to be a greater number of depressions at this time of life and if they are manic-depressive depressions the attacks are longer and more severe. They seem also more frequently to take on the mixed type.

Many psychiatrists still believe, although KRAEPELIN himself accepts DREYFUS' conclusions, that there is still a place for involution melancholia distinct from the manic-depressive group.

Pathology.—There is very little special pathology of this disease. An increased neuroglia formation in the deeper layers of the cortex has been described and in this disease we find most often as a mode of termination that condition of *central neuritis* described by MEYER.[5] The symptoms of this condition are the sudden development of contractions with evidences of degeneration in the motor tracts, emaciation, retraction of lips from teeth, low temperature, semi-coma and death.

Interpretation of the Psychosis.—The reason why depressions are so prevalent in later life is due to the failure of repression and of the compensatory devices. Complexes which have been adequately handled during the earlier years begin to create

[4] Dreyfus, Georges L.: Die Melancholie; ein Zustandsbild des manisch-depressiven Irreseins. Jena. Gustav Fischer, 1907.

[5] Meyer, Adolf: On Parenchymatous Systemic Degenerations mainly in the Central Nervous System. Brain, Part XCIII, 1901.

more trouble as the individual passes the height of mental strength —they become relatively stronger because the forces opposed to them become weaker. The depressions of later life then are largely the result of conflicts of which the individual has been the host for many years but which only produce a psychosis upon the failure of repression as he grows older. The melancholia is, therefore, the result of the final recognition of failure. Depressions frequently result at this time of life from the loss by death of a dear friend or relative or other loved object.

FREUD[5a] says in this connection: "A change into mania is not an indispensable feature of the symptomatology of melancholic depression. There are simple melancholias, some in single and some in recurring attacks, which never show this development. On the other hand there are melancholias in which the exciting cause clearly plays an etiological part. They are those which occur after the loss of a loved object, whether by death or as a result of circumstances which have necessitated the withdrawal of the libido from the object. A psychogenic melancholia of this sort can end in mania, and this cycle can be repeated several times, just as easily as in a case which appears to be spontaneous. Thus the state of things is somewhat obscure, especially as only a few forms and cases of melancholia have been submitted to psychoanalytical investigation. So far we understand only those cases in which the object is given up because it has shown itself unworthy of life. It is then set up again inside the ego, by means of identification, and severely condemned by the ego ideal. The reproaches and attacks directed towards the object come to light in the shape of melancholic self-reproaches."

In melancholia interest in the outer world—object cathexis—is given up or gradually diminished, with a resulting megalomania and hypochondria. Megalomania may be manifested by such beliefs that the patient is the greatest sinner in all the world or the worst criminal that ever existed. The self-love and egotism are symptomatic of a degree of narcissism that makes these patients almost inaccessible to therapeutic approach. The refusal of food is indicative of the importance of the oral-sadistic factor. The sadistic tendency is turned against the self (that part of the self which represents the introjected object with which the patient is

[5a] Freud: Group Psychology and the Analysis of the Ego.

no longer in harmonious adjustment) and by the severity of self-punishment an effort is made to be rid of the sense of guilt, which the psychoanalysts believe is oral-sadistic in origin.

Failure to make a new adjustment to life is expressed by the depression. The bad prognostic significance of grandiose ideas is because they indicate a further regression and reanimation of the narcissistic libido.

Treatment.—The foremost consideration in a great number of these cases is the prevention of suicide. This will require constant surveillance both night and day and in cases where the suicidal tendency is at all developed it is rarely justifiable to attempt this treatment at home, as only in an institution is the problem of taking care of this class of patients appreciated at its true value.

Insomnia is a frequent symptom for which the usual hypnotics, paraldehyde, sulfonal, trional and chloralamid are useful. In cases with high tension an occasional exhibition of chloral may be of advantage. Artificial feeding often has to be resorted to, as refusal of food is common. This means should not be left as a last resort but begun promptly as soon as the patient shows the results of malnutrition, as this class of cases require supporting treatment much more than cases developing at an earlier age. If the apprehension and anxiety are very marked and associated with much motor agitation and restlessness, opium may be tried—preferably the Tr. Opii deod. This will usually relieve the mental distress, but because of the tendency to acquire the opium habit and the chronicity of these cases, this treatment is hardly justifiable except to tide over some exceptional access of anxious depression.

In such cases of extreme agitation, hydrotherapeutic measures are the best means for quieting the patient—the hot pack and more especially the continuous warm bath, the patient being placed in a tub of water at about 96° F. and left in several hours, often all day each day and in some cases continuously for days at a time.

Differential Diagnosis.—The principal disease which has to be differentiated is manic-depressive psychosis. Enough has already been said on this point, except to note that the occurrence of previous attacks should be looked into. They would, of course, make for a diagnosis of manic-depressive psychosis, although if

the history of these cases is carefully searched there will be found evidences of affect fluctuation as might be expected from what has been said of its relation to the manic-depressive group.

Early senile psychoses are often hard to differentiate and in fact the two graduate into one another. Old cases of melancholia often get to present evidences of senile decay. Arteriosclerosis seems to bridge the space between the two sets of psychoses, the involutional and the senile, and so we find symptoms common to both.

Other Psychoses of This Period.—The following are further, somewhat elaborate attempts at breaking up the symptomatic material of this period into groups of more definite clinical pictures.

Involution Paranoia of Kleist.[6]	Involution Paraphrenia of Serko.[7]
Beginning.—In close connection in time with the climacterium.	Acute.
Climax.—Years after this.	Chronic progressive.
Occurrence.—Ninety per cent in women; 70 per cent, living alone.	Principally women.
Foundation.—Grows out of the personality, out of a hypoparanoid constitution, and finds expression in exaggerated consciousness of self, desire to dominate, obstinacy, sensitiveness and suspicion.	
Symptoms.—Elementary: Suspicious or expansive depressive mixed effects. Misinterpretations, illusions, falsifications of memory.	*Primary.*—Insane ideas of insult and injury, persecution; secondarily: the demands that go with the overvaluation of self.
2. Peculiar disturbances of thought. Retardation and perseveration+flight of ideas (difficulties in performing certain mental tests, restriction of associations with flight of ideas in the free play of thought, loquacity in regard to past experiences).	*Content.*—The sexual factor is never absent (jealousy, trickery with sexual point, sexual threats, insults, rape, indecent assaults, insane ideas with regard to marriage).
Resultants.—Insanity of injury with or without ideas of grandeur in all forms (connected with reality or without	*Form.*—Trivial trend, commonplace scope, lack of elaboration (two complexes without logical elaboration as the expression of

[6] Kleist: Über chronisch wahnbildende Psychosen der Rückbildungsalters usw. Allg. Zeitschr. f. Psych., 69, 1912.—Die Involutionsparanoia. Ebenda, 70, 1913.

[7] Serko: Die Involutionsparaphrenia. Monatsschr. f. Psych. u. Neurol., 45, 1919.

Involution Paranoia of Kleist—*Continued.*	Involution Paraphrenia of Serko.—*Continued.*
any connection whatever with reality, unchanging or varying, systematized or nonsystematized).	the general narrowness of spirit and whimsicality).
Very great rôle.—Sexual affects (jealousy, fear of sexual insults, indecent conduct).	Visual phenomena rare.
Illusions, especially optical, are never absent.	Pseudomemories are often decisive; also phonemes of sexual coloring.
Hallucinations.—In 50 per cent there is belief in thought-hearing, and the insane ideas take the form of sense presentations.	True hallucinations questionable. On the other hand, loquaciousness and cyclothymic variations.
Course.—Insidious onset; when the climax is reached the curve proceeds at an even level, terminating in chronic invalidism without destruction of consciousness, or dementia.	In the course of years a chronic progressive mental regression in the sense of a reduction of affective interest (absent mindedness in expression, relative inaccessibility, but without schizophrenic features).
Nature.—Autochthonous intensification of the hypoparanoid constitution as result of nondestructive changes in the brain of innersecretory nature, following involution of the generative organs. The somatic endogenous reactive factor outweighs considerably the psychogenic reactive factor. The physiologic or normal change of the personality at advanced age in the direction of obstinacy, etc., is more marked because the individuals have been hypoparanoid during their entire life.	Reflection of the normal psychic peculiarities of the individual in intensified form, in the involutional years.
In the main lines all the cases cited conform to the symptomatology both in course and origin, as given.	

Presenile Paraphrenia of Albrecht.[8]	Paranoid Psychoses in Advanced Years of Seelert.[9]
Beginning.—Somewhat later than the climacterium, forty-five to fifty-five years.	Years after the climacterium, between fifty and seventy-four.

[8] Albrecht: Die funktionellen Psychosen des Rückbildungsalters. Zeitschr. f. d. gesamte Neurol. u. Psych., 22, 1914.

[9] Seelert: Paranoid Psychosen im höheren Lebensalter. Arch. f. Psych., 55, 1915.—Verbindung endogener und exogener Faktoren in dem Symptomenbild und der Pathogenese der Psychosen. Beiheft z. Monatsschr. f. Psych. u. Neurol., 6, 1919.

PRESENILE PARAPHRENIA OF ALBRECHT.—*Continued.*

Occurrence.—Two-thirds in women.

Foundation.—Hereditary taint. Hypoparanoid character not proved.

Symptoms.—Suspicion. Misinterpretations. Ideas of reference and persecution, often in the sense of tricks, mocking, poisoning and with sexual content (paramour, incest, impregnation, etc.).

Secondary delusions of grandeur.

After months hallucinations of sense in the direction of the insanity, which, becoming more numerous, are finally the principal symptom.

No flight of ideas. Good humored excitability not specially injured. Course: chronic condition of insanity with hallucinations of sense. Even after years no considerable mental weakness.

Nature.—"Identical with involution paranoia, perhaps only distinguished from Kraepelin's paraphrenia in involutional years for practical reasons, being a subform thereof."

PARANOID PSYCHOSES IN ADVANCED YEARS OF SEELERT.—*Continued.*

Five-sixths women; nearly all women who have lived alone in want and in bad social conditions. From youth on, abnormally lively affectivity (extreme feeling of self-importance, tendency to dominate, suspicion, incompatibility, excitability), with good intellectual endowment.

Insane ideas of being insulted and injured through exhalations, smoke, powder, persecutions; numerous bodily disturbances, sensations of taste and smell; hallucinations of hearing (telephone, crackling noises), never hallucinations of sight. Insanity of interpretation. References to self, falsifications of memory, retrospective misinterpretations. Isolated delusions of grandeur.

Material.—Like the subjective perceptions of organic brain disease.

Form.—Slight systematization.

Endogenously conditioned individual reactions to an organic cerebral arteriosclerotic process, of slow course, and proved to have actually existed in two-thirds of the cases (brain involution). "Identical with presenile insanity of injury, senile insanity of persecution, involution paranoia." Sharply distinguished from paraphrenia, but with transitions to, and connections with, melancholia and the characteristic features of manic-depressive insanity.

Insidious development with only occasional variations in emotions. Uniformity of picture with transitions to intellectual mnesic defective conditions of light form.

The Senile Psychoses.

A certain degree of involution, regression, failure of both the mental and physical powers is normal to man if he lives beyond the period of his maximum vigor. Age, however, is not a matter of years. Some men are older at forty than others are at sixty, and the dictum that states that "a man is as old as his arteries" comes very near the truth.

Causes.—The causes of the senile and presenile psychoses lie in the tissue changes incident to involution. These changes begin much earlier in some persons than in others and in them the element of heredity probably enters as a potent factor. A tendency to early arterial degeneration certainly occurs in families. This tendency may, of course, be aggravated and the changes of senile degeneration hastened by a variety of causes, both mental and physical, among which alcoholism is perhaps the most prominent.

Symptomatology.—When senile involution begins earlier than the sixtieth year there exists the condition spoken of as *senium precox*. Bleuler[10] believes these cases are cases of late dementia precox. The symptoms of this condition differ usually from those of simple senile involution or even from the more common types a senile dementia developing later, and, as it were, form a connecting link between the cases of involution melancholia and the senile psychoses. The condition has a rather long prodromal period, during which the patient complains of all sorts of sensations, such as vertigo, general malaise and various paresthesias not unlike the beginning symptoms of involution melancholia. At the same time he becomes morose, seclusive and irritable. From this condition delusions soon develop which are hypochondriacal and persecutory in character. These delusions, however, being founded upon a basis of deterioration partake of and show the element of defect in their absurdity. The brain is dried up, certain viscera have been removed, bones are broken and like complaints are heard. The persecutory delusions may take the usual form of poisoning and the like, but are apt to take on a sexual type and wife or husband believes the partner to be unfaithful. These delusions remind one of the similar delusions found in chronic alcoholism, but they are much more absurd and

10 Bleuler: Dementia Præcox oder Gruppe der Schizophrenien. 1911.

built upon the most inconsequential happenings, often originating entirely in the patient's mind. One not infrequently sees, for instance, a wife complaining of the infidelity and sexual dissipations of a husband who is so old and feeble that he can hardly get about. These patients may be very irritable at times and become very angry as a result of what they believe to be going on, but they usually soon quiet down and go right on living quietly and peacefully under the same conditions, making no effort to correct them until the next outbreak occurs. Their mental defect is shown in these evidences of lack of judgment as well as in the absurdity of their delusions.

Consciousness is unclouded and the patients are well oriented. Emotionally there is often some depression, while in the attacks of rage the emotion of anger occupies the foreground. Hallucinations are not prominent but may occur.

The more usual symptoms of *senile involution* occurring after sixty are in the main a loss of memory for recent events, due to lack of impressibility to the extent even that events of only an hour before are completely forgotten, lack of ability to recognize faces, marked egotism, so that others' wants and comforts are not considered, which may be associated with some irritability on interference. There is developed more and more as the years go on a true misoneism, so that the patient will positively not tolerate any change in the usual order of things, everything must be done the same from day to day, the same seat is preëmpted, a particular kind of food demanded, and the like with other comforts. With this misoneism and the lack of memory for recent events goes a marked tendency to reminiscence. The events of youth and the years long past, unlike those of recent occurrence, are vividly recalled and the patient thus really lives in a world of former days, constantly recalling and reiterating things that occurred long ago. This condition becomes progressively worse, the patient leading a vegetative existence almost wholly, no mental initiative, failure of judgment and a progressive loss of comprehension of the environment, so that there is no adequate grasp of the present at all.

With this mental failure goes a corresponding change on the physical side. The signs of age are evident in the wasted muscles, the wrinkled, inelastic skin, gray hair, the raucous voice, arcus senilis, senile cutaneous affections, and signs of arteriosclerosis

in the superficial arteries. In this connection it should be remembered that the condition of the palpable arteries may not indicate at all the condition of the cerebral vessels. The superficial vessels may show marked arteriosclerotic changes, while the cerebral vessels are in relatively good condition, or, on the contrary, the cerebral vessels may be seriously affected in a person whose radials are comparatively soft and whose temporals are not noticeably tortuous.

This condition of senile decay may be said to be normal, although many persons live to advanced years without showing it—it is the condition of the *dotard*. It is, nevertheless, properly speaking, a true dementia.

If upon this background of dementia active psychotic symptoms are developed they are usually shown in delusions, with perhaps hallucinations. The delusions are of a persecutory character and the condition may be spoken of as paranoid. They are not, however, as fixed as in paranoia and because of the dementia there can be little effort at systematization. The emotional attitude varies with the content of the delusion but is often marked by its silly, childish characteristics. Thus one old lady says she has a great deal of money but does not know how much—it is in the Court of Claims and her daughter is coming to take her home and then they will get the money. This is all told in the most matter of fact way, repeated as though it were a formula and not a vital, living fact of her life. This attitude and emotional poverty show fully as well as the absurdity of the delusions the demented foundation of the psychosis.

ALZHEIMER[11] has described a *presenile dementia,* developing about the fourth decade, which has the pathology of senile de-

[11] Alzheimer: Über eine eigenartige Erkrankung der Hirnrinde (37 Versammlung südwest deutscher Irrenärtze), Ref. Centrb. für Nervenheilk. und. Psych., Vol. 30, 1907; Über eigenartige Krankheitsfälle des späteren Alters, Zeit. f. gesamte Neurol. u. Psych., Vol. 4, 1911. Perusini: Über klinisch und histologisch eigenartige psychische Erkrankung des späteren Lebensalters, Histol. u. histopath. Arbeiten über die Grosshirnrinde von Nissl und Alzheimer, Vol. 3, 1910. Lafora: Beitrag zur Kenntnis der Alzheimer'schen Krankheit oder presenilen Demenz mit Herdsymptomen, Zeitsch. f. d. gesamte Neurol. und Psychiat., Vol. 6, 1911. For an excellent critical review of the whole subject of Alzheimer's disease see Jour. Nerv. and Ment. Dis., November, 1922.

mentia and clinically manifests focal symptoms particularly of the paraphasic and apraxic variety.

Senile dements are especially apt to be restless and suffer from insomnia, sleeping, on the contrary, much of the time during the day, even as they sit up in their chairs. Often the restlessness at night takes the form of wandering about the house and during these periods they are apt to be disoriented considerably and to show much *confusion.* This tendency to confusion is, too, often marked when the patient awakes from a sleep, for some time he fails to apprehend his environment, does not know where he is, or what time of day it is. It is as though the cerebral circulation, because perhaps of the diseased vessels, took a very long time to readjust itself to the waking state.

This form of senile dementia is spoken of as *simple senile deterioration.*

Aside from these attacks the patient may be quite well oriented and there may be no clouding of consciousness. On the other hand they may be disoriented, both as to time and place. This is often largely due to their memory defect, lack of attention and impressibility. Such patients will supply deficiencies in their memory by all sorts of fabrications, reminding one of the similar symptoms in paresis and certain alcoholic cases (Korsakow's psychosis). One old man, although just out of bed and so feeble he can hardly stand up, tells me he has been working, making some sort of wire affair, for a man on Harrison Street for the past seven months. Another patient tells me she cannot sleep nights, for somebody spends the entire night shooting her and fills her with bullets, yet while telling this she shows no disturbance whatever, wears a slight smile and talks of these events as if they were the most commonplace affairs of everyday life. These are the cases of *presbyophrenia* which quite closely resembles Korsakow's psychosis.

To those cases in which the symptoms of confusion, which we have seen already occurring in the form of senile deterioration just described, especially connected with changes in cerebral circulation, are present much more prominently, and which there is marked disorientation and clouding of consciousness, the designation of *senile confusion* is given.

In these cases the confusion is not merely a transitory symptom,

occurring upon awakening, but is constant. These patients do not know where they are, will ask if dinner is ready when perhaps five minutes before they have eaten a hearty meal, forget the location of their room, undress and go to bed in the middle of the day, no longer recognize those about them, not even their children, and are difficult to manage, headstrong, peevish, resistive and inaccessible to reason. Various delusions may be expressed, often hypochondriacal in character, but quite characteristically absurd in content.

This variety of senile dementia often follows that of simple deterioration, being in fact but a more pronounced grade of degeneration. In severe cases it may usher in the mental changes.

Certain cases, over sixty years of age, develop a true *paranoid* condition, with delusions of persecution and hallucinations of hearing. These cases may not present marked evidences of senile decay and consciousness may be unclouded, orientation complete and the train of thought well maintained. This condition must be differentiated from an alcoholic delusional psychosis, paranoia and dementia precox which KRAEPELIN says may rarely develop at advanced age.

Among the physical symptoms that may develop in the course of senile deterioration are apoplexy, apoplectiform attacks and senile epilepsy. True apoplexy may, of course, occur and complicate the picture while apoplectiform attacks resulting in transient paralyses, and reminding one of the similar attacks in paresis are not uncommon. Epileptic seizures may take the form of either *petit mal* or *grand mal,* and well developed attacks which recur with considerable frequency are not uncommonly developed in the senile. Chorea, of the type of Huntington, or of the post-apoplectic variety, is not infrequently observed in large institutions for the insane.

In an analysis of two hundred cases of senile dementia PICKETT[12] gives the following list of symptoms which he found and which I reproduce in the order of their relative frequency: Wandering street; hallucinations prominent; violence; vertigo; persecutory ideas, other than poisoning, conspiracy, etc.; exaltation; night prowling; apoplectiform strokes; headache; suicidal attempts;

12 Pickett, William: Senile Dementia: A Clinical Study of Two Hundred Cases with Particular Regard to Types of the Disease. Jour. Nerv. and Ment. Dis., Feb., 1904.

suspicion of conspiracy; suspicion of poisoning; violence at night; epileptiform attacks; delusions of marital infidelity; setting fire to things; echolalia; chorea.

In addition to the types of cases already discussed a *senile delirium* has been described. This condition is characterized by varied and fleeting delusions, multiform hallucinations, clouding of consciousness, great incoherence and marked motor restlessness, often an occupation delirium. This may usher in a case that has been up to that time following a normal course, or it may occur as an episode in any case of senile psychosis. As in the condition of acute delirious mania, so here I think it should usually be attributed to some bodily cause—pneumonia, nephritis, cystitis. It may clear up but is frequently fatal, and in these cases it is not improbable that the delirium is a manifestation of a *terminal infection.*

Course and Prognosis.—The course of senile dementia is progressive until death. The patients finally become completely demented, so that they are wholly disoriented, confused, know no one around them; in fact may not even know their own names.

It is quite possible to have attacks of other psychoses at this time of life, particularly stages of manic-depressive psychosis. The prognosis of the psychosis is not changed materially by the senium except of course that exhaustion is more apt to occur and terminate the case. The underlying dementia continues the same or prhaps is somewhat worse after the attack passes off. The senile deterioration, being due to actual tissue changes, remains stationary or gets progressively worse, while the psychosis engrafted upon it may or may not be recovered from.

Diagnosis.—Paranoia must be differentiated by the history. Many cases of paranoia develop senile deterioration but the history would show an early development of symptoms.

It should be remembered that catatonic symptoms occur in senile psychoses and one should not for that reason alone suppose the patient to be an old precox.

The cases with well-marked arteriosclerosis and multiple areas of softening present a picture closely resembling paresis. A careful study of the reflexes, both pupillary and tendinous, a consideration of the speech defect which is more truly aphasic, and the age of the patient, with evidences of arteriosclerosis, but

without evidences of syphilis, will usually serve to make the distinction.

There are certain borderland cases presenting emotional depressions that are difficult to distinguish from involution melancholia. The presence of defect is the criterion to judge by, though these two conditions do undoubtedly graduate into one another and as already stated melancholiacs after a prolonged duration may develop senile deterioration.

Considerable difficulty may arise in distinguishing presbyophrenia from Korsakow's psychosis. NOUÈT[13] has made a careful differential study of the two conditions. He sets forth the following diagnostic considerations:

Korsakow's psychosis affects persons particularly of adult age; presbyophrenia, on the contrary, belongs to the period of old age, the age of predilection oscillating about seventy years. Presbyophrenia, it is known, is quite uniquely an affection of women, while Korsakow's psychosis is far from being rare among men. The humor of the presbyophrenic is always gay, euphoric and satisfied, quite different from the psychopolyneuritic, who is ordinarily depressed or apathetic, and whose face preserves an invariable immobility. The traits of the presbyophrenic are extreme mobility, they laugh, make grimaces in which the mimic muscles participate. The facies of the psychopolyneuritics, however, are always dull and without expression. Loquacity is a symptom scarcely ever lacking in presbyophrenia; the patients talk without stopping about everything,

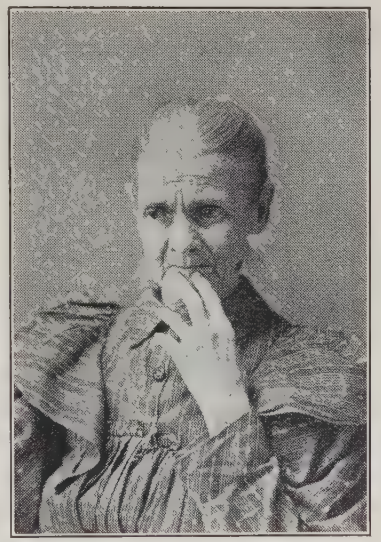


FIGURE 15. Woman sixty-five years old with the presbyophrenic form of senile psychosis. The facial expression which is typical, is one of active perplexity and slight agitation.

[13] Nouèt: Presbyophrénie de Wernicke et Les Psychopolynéurites. L'Encéphale, Feb. 10, 1911.

with equal volubility. This symptom is lacking in Korsakow's psychosis. The presbyophrenic is polite, amiable and cordial, characteristics which one seeks in vain among the psychopolyneuritics. Disorders of consciousness are much more marked in the presbyophrenic. These patients have no understanding of their state of illness and content themselves with laughing when one asks a question relative to their physical or mental health. On the contrary the psychopolyneuritic gives a fairly good account of himself and of his position, and is the first to lament his situation. The judgment of these patients, even in the chronic forms, is less noticeably affected, and their degree of intellectual enfeeblement less marked. The amnesia, finally, is more profound in the presbyophrenic, and besides in this affection the patient does not possess at all a knowledge of this amnesia—the inverse of what one observes in the chronic forms of Korsakow's disease, where the subjects speak spontaneously to their interlocutors of the profound troubles of their memory. Presbyophrenia is rare in its typical forms, but common in the *formes frustes*. Where the symptoms only approach, or where certain of them are lacking, the presbyophrenia has, perhaps, the distinctive characteristics of arteriosclerosis, which are seen much more among these patients than among simple senile dements. Patients die nearly always of cerebral hemorrhages, and their nervous centers present at autopsy pronounced atheromatous lesions.

Pathology.—Grossly the brain shows signs of atrophy and decreased weight. The dura may be adherent to the calvarium and may present internal hemorrhagic pachymeningitis. The pacchionian granulations are increased in size. The leptomeninges are thickened, especially the pia, which is turbid from lymph exudate. The sub-arachnoid space is filled with fluid, which takes the place of the atrophied convolutions—hydrocephalus ex vacuo. The convolutions are shrunken and the fissures between them widened. The blood vessels may or may not show the changes of arteriosclerosis, there may be thrombosis, or the lumen of some of the smaller ones may be very greatly reduced, thus impairing the nutrition of the area, to which they are distributed. Miliary aneurisms may occur and hemorrhage from rupture of them is not infrequent. Multiple areas of softening may be present from these various sources, more especially in the cortex.

Microscopically the cells show degenerative changes, especially

an increase in yellow pigment amounting to a pigmentary degeneration. There is also a disappearance of fibers, especially the tangential. These having association functions their disappearance accounts in a measure for the dementia. The neuroglia is increased and sclerosis of the cortex is commonly found.

There is a pure senile atrophy which is not associated with arteriosclerosis. In this condition there is a diffuse atrophy of the nervous parenchyma with increase of neuroglia but the vessels show nothing. In this condition REDLICH[14] has described certain small patches—miliary necroses—which are not softenings and not associated in any way with the vessels. FISCHER[15] has shown that the axis cylinders in these patches show peculiar gland-like enlargements which he thinks specific of the pathology of presbyophrenia.

There have been described by various authors basket-like neuroglia structures surrounding the ganglion cells. These neuroglia and satellite basket formations and ganglion cell incrustations have been well described by ACHÚCARRO.[16]

Aside from these changes other organs are usually found affected, particularly the heart and kidneys, the former showing degenerative changes in the myocardium, the latter evidences of chronic nephritis.

Treatment.—The mild cases, especially those that maintain their orientation fairly well, can be cared for at home. Those with marked confusion, especially with a tendency to wandering, need an attendant to be with them. There is danger of their becoming lost and coming to grief, or if they wander about the house at night they are apt to meet with some accident, more often to fall down stairs and sustain fractures. Patients who are very resistive, present surgical troubles, are filthy in habits,

14 Redlich: Ueber miliaren Sklerosen der Hirnrinde bei seniler Atrophie. Jahrb. f. Psych. u. Neurol., Bd. XVII, 1898.

15 Fischer: Miliare Nekrosen mit drusigen Wucherungen der Neurofibrillen, eine regelmässige Veränderung der Hirnrinde bei seniler Demenz, Monatschr. f. Psych. u. Neurol., Bd. XXII. Der Histopathologie der Presbyophrenie, Jahresvers. d. Deutscher Ver. f. Psych. zu Berlin, 24–25, April, 1908; Ref. Allg. Ztsch. f. Psych., Bd. LXV, p. 500.

16 Achúcarro, Nicolás: Some Pathological Findings in the Neuroglia and in the Ganglion Cells of the Cortex in Senile Conditions. Bulletin No. 2, Govt. Hosp. for the Insane, 1910.

or show a tendency to commit sexual crimes, should be cared for in an institution.

As regards the more special treatment, little is to be said. Hygienic surroundings, a simple diet, looking after the emunctories, and if insomnia is present the occasional exhibition of a hypnotic constitutes about all there is to be done. In this class of cases, more perhaps than in any other, is the use of alcohol as a hypnotic indicated. A little whiskey and hot water, or a glass of beer or ale acts very nicely. It should be given, however, strictly under medical authority and supervision, as these patients are apt to be susceptible to its influences. In the earlier stages of the disease potassium iodide is the drug par excellence for its general alterative properties and its effect on the arterial tension.

The Epochal Psychoses in General.

In the past it has been common to describe certain other psychoses occurring at physiological epochs and to give them the name of the epoch during which they occurred. Thus we find the group of *puerperal psychoses,* especially *puerperal mania,* and the *lactational psychoses.*

Infection and exhaustion are frequent causes operating at these periods to produce mental disturbances. A large number of these psychoses therefore naturally group themselves under the infection-exhaustion types to be described in the next chapter. Psychogenic factors, however, are frequently of prime importance. A depression during pregnancy, for example, may mean that the wife is not in love with her husband and therefore does not want his child. It will be understood, however, that the strains incident to pregnancy, parturition, the puerperium and lactation may produce outbreaks of various psychoses, particularly dementia precox. There is no such thing, for example, as a puerperal psychosis, strictly speaking. Mental disorder frequently occurs during the puerperium but must be classified in accordance with the symptoms it presents rather than the time at which it occurs.[16a]

[16a] For an explanation of the mechanism in the dementia precox group of post-partum psychoses, see Zilboorg, G.: Post-Partum Schizophrenias, Jour. Nerv. and Ment. Dis., October, 1928.

The Arteriosclerotic Psychoses.

Arteriosclerosis.—This condition is associated with a progressive failure of the mental faculties and local symptoms, due to areas of softening. Because of the diffuseness of the lesions the picture often closely resembles paresis, but the patient is much further advanced in years than is usual for the paretic. Cerebral arteriosclerosis furnishes the connecting link between the psychoses of involution and of the senium. Many of the late depressions present the picture of beginning senility, and in general the later the depressions come on the worse the prognosis, while many of these cases drift over into a senile, or arteriosclerotic dementia.

In the anamnesis alcohol, syphilis and hard mental work may be found. It is therefore important in those cases resembling paresis to examine the cerebrospinal fluid both as to the nature of the cell content and its reaction to the Wassermann complement fixation test.

Alzheimer[17] has described four varieties of the disease which are to an extent differentiated clinically.

1. *Arteriosclerotic Brain Atrophy.*—This occurs in two forms, a mild form with severe arterial sclerosis but an absence of focal brain lesions. The symptoms are easy fatigue, slight failure of memory, dizziness and headache. The severe type may resemble the mild at first but is progressive, leads to profound dementia and presents in its course apoplectiform and epileptiform attacks and focal symptoms.

2. *Subcortical encephalitis* of Binswanger.[18] In this condition the white matter is largely involved as a result of the disease in the long medullary arteries. Apoplectiform and epileptiform attacks occur and also transitory attacks of confusion, aphasia and paresis, disturbances suggesting focal lesions. Focal lesions are not found extensively but areas of softening often occur in the basal ganglia.

3. *Perivascular Gliosis.*—In this condition there is a disappear-

[17] Alzheimer: Histol. u. histopat. Arb., Bd. I, 1904. Allg. Ztschr. f. Psych., LI, LIII, and LIX. Die Seelenstörungen auf arteriosclerotischer Grundlage, Allg. Zeitschr. f. Psych., Vol. 59, cited by Barrett, Albert M.: A Study of Mental Disease Associated with Cerebral Arterio-Sclerosis. Am. Jour. Insanity, July, 1905.

[18] Binswanger: Die Begrenzung der Allegemeinen Paralyse, Allg. Zeitschr. f. Psych., Vol. 51. Cited by Barrett, *loc cit.*

ance of nervous elements about the diseased vessels and replacement by neuroglia.

4. *Senile Cortical Devastation.*—Here are found extensive destruction of cortical areas in the vascular territories of the diseased vessels.

Pick [19] has very thoroughly described certain large atrophies involving whole lobes or portions of lobes. The occipital lobes may be involved, producing blindness, or the temporal, producing deafness, for example. The atrophy, however, does not always follow a vascular area and, while it is generally supposed to be due to arteriosclerotic disturbances in the irrigation of these territories, the cause is not always altogether clear.

Symptomatology.—In evaluating the symptomatology of this disorder it must be remembered that arteriosclerosis seldom involves the arterial tree in all its parts equally, that in the first place we have the general physical symptoms of the disease and the symptoms of the disease as it involves the somatic structures generally other than the nervous system. Then we have the symptoms of the disease as it involves the central nervous system especially.

As regards this latter group of symptoms we may consider arteriosclerosis roughly as classifiable into two large groups—those which are exceedingly slow in progress and show a gradually increasing mental weakness and those which are more abrupt in origin starting with an apoplectic stroke without previous warning and leading to rapid deterioration. Roughly speaking, the former of these groups is dependent upon involvement of the smaller cortical vessels, the latter group upon the involvement of the larger arteries.

In both of the above types of cases, and in fact in the entire group of arteriosclerotic diseases, there is not only the outstanding mixture of mental and somatic, particularly neurological symptomatology, but also the fact that the disorder tends to spread by a series of seizures with intervals of quiescence. The seizures which run all the way in severity, from severe apoplexies to mild confusions of temporary duration, may be due to a rupture of a vessel or to its thrombotic occlusion. The latter is quite the char-

[19] Pick: Zur Symptomatologie der linkseitigen Schläfenlappenatrophie, Monatschr. f. Psychiat. u. Neurol., Vol. 16, 1904. Pick: Die umschriebene senile Hirnatrophie als Gegenstand klinischer und anatomischer Forschung, Arbeiten aus der deutsch. psych. Klinik in Prag, Berlin, 1908.

acteristic method of spread of the disease, particularly in the smaller vessels. The intervals of quiescence are sometimes greatly prolonged, even extending over a period of a number of years.

The symptoms of the arteriosclerotic mental deterioration are those of a gradually increasing intellectual and emotional weakness with a progressive narrowing of the horizon of interests. At first the intellectual acquirements are not destroyed, but only imperfectly managed. This functional let-down is followed in the course of the progress of the disease by definite defect symptoms, such as defect of intake, deficiencies in memory, disorders of judgment, and finally the whole array of mental symptoms which may appear in conjunction with this type of physical deterioration. Thus we have such symptoms as irritability, fearfulness, elation, depression, apathy, paranoid, hypochondriacal and delusional ideas; in fact the whole gamut of psychological symptomatology appears upon the background of the characteristic arteriosclerotic defect, these slowly developing as the result of mild seizures or showing a more malignant, stormy and rapid progress.

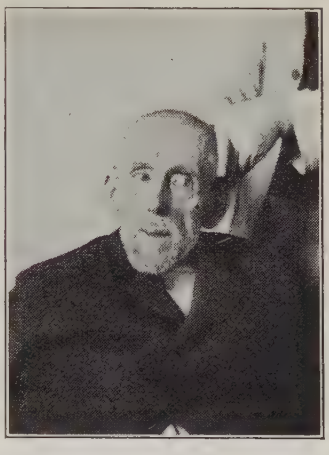


FIGURE 16. Facies of a patient during a temporary confused state of arteriosclerotic brain disease.

On the psychological side we find, especially where the larger vessels have been involved, and severe apoplectic effects have resulted, the usual signs of the various types of hemiplegia. Of especial significance are the disturbances of speech and expression generally in one field or another, particularly the motor types of aphasia and the apraxias. The profound significance of these functions in our mental life necessarily entail far reaching results when they are impaired, and undoubtedly their impairment hastens and deepens the mental deterioration. Along with these disturbances go symptomatically characteristic disturbances of articulation and writing.

Diagnosis.—The disease most apt to be confounded with arteriosclerotic dementia is paresis. It may be difficult to differ-

entiate some cases of paresis with focal lesions. In general paresis occurs earlier in life and presents more uniform impairment. In arteriosclerotic dementia the patient has better insight into his condition, the delusions are more closely related to his previous life, to the vocation and social position of the patient, they are less unnatural, the "nucleus of the personality"[20] is better retained. The disease commonly lasts much longer than paresis.

The focal lesions may give rise to a mistaken diagnosis of brain tumor. Another not infrequent result of the focal brain lesions is the appearance of convulsive seizures giving rise to the syndrome epilepsia tarda, or late epilepsy. Focal lesions also manifest themselves by very mild pareses which result, among other symptoms, in hardly noticeable facial asymmetries, but which need to be looked for carefully.

Arteriosclerosis and the involution of the senium are so closely associated that it is often practically impossible to separate them clinically. A careful anamnesis and neurological examination is important in every case. It must not be forgotten that many cases with localized brain lesions, aphasics and even apraxics pass for dements though analysis may show a comparatively clear intelligence.

Treatment.—In the main the treatment should be to so regulate the life as to take all unnecessary strain from the cardiovascular system. Easily assimilated food, care of the emunctories, moderate exercise, freedom from worry and from mental or physical exertion. For the insomnia alcohol in the form of a small dose of whiskey and water at night is excellent, but should be given with great care and its administration carefully guarded, as these patients are especially susceptible to it and often develop periods of confusion from very small doses.

[20] Weber, L. W.: Zur Klinik der arteriosklerotischen Seelenstörungen. Monatschr. f. Psych. u. Neurol., Bd. XXIII, 1908.

CHAPTER XIII.

The Infection-Exhaustion Psychoses.

The infection and exhaustion psychoses are classified together in this chapter partly because of the closely similar pictures their respective psychoses present and partly because of the fact that the two conditions are so closely and so frequently found associated clinically. It would be difficult, for example, to discriminate the two factors in a post-partum case where there had been infection following a prolonged and difficult labor with considerable hemorrhage. Then, again, it is probable that the immediate causes are not altogether dissimilar in the two conditions, as it seems to be fairly well demonstrated that the symptoms of fatigue are due to a toxemia, the result of the development of poisonous substances in the body from the chemical breaking down of tissue.

In this chapter it will be necessary to frequently use the terms *confusion* and *delirium*. By confusion is meant a state of disorientation in all the three spheres—temporal, spatial and personal. The confusion and consequent disorientation may be of any degree. By delirium is meant a confused and clouded state of consciousness associated with and symptomatic of fever. The two terms are not clearly differentiated, as we speak of prefebrile delirium.

Previous chapters have emphasized the fact that the condition of permanent mental impairment—dementia—modified the symptoms of a psychosis, so, for example, if there was a delusional state, the delusions tended more to take on strange, bizarre, fantastic characters, because of the lack of judgment and of the critical faculty. What has been said in this respect of the permanent mental impairment of dementia may be as well said of the more acute, transitory states of mental impairment—confusion and delirium. In these conditions with disorientation and clouding of consciousness the judgment is also greatly impaired and the critical faculty practically in abeyance. As a result, here also the most fantastic delusions are present. The delusions,

however, are less apt to have any fixity because of the multiplicity and changeableness of the symptoms in the psychosensory field on which they are largely dependent. Here, as elsewhere, the specific character of the delusional and hallucinatory experiences is psychologically determined. Not infrequently upon recovery the patient can give the explanation of their meanings.

Pre-Febrile, Febrile and Post-Febrile Psychoses.

Speaking generally fever and infection may be said to be measures of the mental stability of an individual. While some persons will remain mentally clear with a fever of 106° F., others will become delirious with only a slight rise in temperature. Some persons will go through an attack of typhoid, for instance, with little or no delirium, while in other cases delirium is an early symptom and continues throughout the course of the disease. The lack of resistance is sometimes very marked indeed. I recall a young man who developed marked symptoms as a result of a very slight infection of a finger. There was only a drop or two of pus, no ascending lymphangitis and only about a degree of temperature, yet resistance was so poor that he was temporarily deranged. In general, these cases are of poorer prognosis than the more resistive. It is generally considered, for instance, that the early development of delirium in typhoid is a bad sign, indicating that the nervous system is seriously involved and that the case is going to be a severe one.

Infection Delirium.—Under this head are included the mental disturbances which develop early in the infectious diseases, either before the fever appears at all or else when it is still so low that the mental disturbance cannot be attributed to it and therefore must be due solely to the infectious agent—(*initial delirium*). This condition is found associated with typhoid, typhus, smallpox, malaria and hydrophobia. It usually takes the form of an acute confusion, but there may be delusions of a consistently disagreeable character, generally persecutory. The condition in hydrophobia is rather one of change of character, irritability, and great sensitiveness to sensory impressions, restlessness, usually depression, verging into a delirium with confusion, hallucinations, apprehensiveness and excitement as the disease progresses, with which is usually mixed many symptoms of psychogenic origin. In those cases especially in which the delirium is a very early symp-

tom, occurring before the fever, the diagnosis is very difficult and may be quite impossible until the infectious disease is frankly established.

Febrile Delirium.—A condition tending to confusion of variable intensity, usually following in its degrees the febrile movement. The milder cases usually exhibit symptoms only as night approaches.

It may be described in four stages according to the degree of severity. In the *first stage:* headache, irritability, sensitiveness to noises and light, restlessness, disturbing dreams. In the *second stage* hallucinations appear, especially in the visual field. The hallucinations are of a dream-like character and the patient may still be made to react clearly. In the *third stage* the motor disturbance is greater and takes on the character of jactitation. The *fourth stage:* profound dulling of consciousness, uncertain and ataxic movements, coma and death.

The onset and severity of the delirium is, to an extent, a measure of the mental stability of the patient. Delirium develops much more readily in the unstable and those predisposed to the development of psychotic symptoms.

Bonhoeffer[1] describes several forms of fever delirium. An *epileptiform excitement* and an *infectious dream state* (Ziehen), an *hallucinosis,* and *hallucinatory, catatonic,* and *incoherent confusional states.*

Post-Febrile Psychoses.—These conditions either develop as a result of the delirium of the febrile state, continuing after the fever has subsided, or may take their origin from the first during the post-febrile period. In the latter case the disease is essentially an exhaustion psychosis.

In this period also we may have epileptiform excitements and dream states. Bonhoeffer[2] calls attention to the fact that there may also be a retrospective falsification of memory that gives somewhat the appearance of Korsakow's psychosis.

The mental state during defervescence is usually one of confusion, with multiform hallucinations—the patient sees strange faces peering at him from the pictures on the wall, he can see

1 Bonhoeffer: Die symptomatischen Psychosen im Gefolge von akuten Infektionen und inneren Erkrankungen. Pub. by Deuticke, Leipsig und Wien, 1910.

2 Bonhoeffer: Die symptomatischen Psychosen.

through the walls into the next house, the pictures turn about and change places—there is a marked disorientation and delusions usually of a persecutory nature—poison is administered in the medicine. This condition may become more severe, the delirium more active, the utterances very incoherent and finally a stuporous state may develop with a tendency to catalepsy. Grandiose ideas may also occur at this time.

The exhaustion in most of these cases may be profound and terminate fatally; a certain few go on to the development of a chronic delusional state. Improvement in the general physical state is accompanied by mental improvement.

Exhaustion Psychoses.

These conditions develop after severe exhaustion from any cause—loss of blood, parturition, prolonged anxiety and worry, severe mental shock, prolonged convalescence from the acute fevers, such as typhoid, pneumonia, the exanthemata, etc.

Collapse Delirium.—This is the *Delirium grave* or the *acute delirious mania* of the older authors.

The disease may present a prodromal period of restless irritability and insomnia, after which a condition of confusion develops which may be very mild, constituting only a slight degree of perplexity or more usually manifesting hallucinations, clouding of consciousness, disorientation and dreamy delusions. Psychomotor excitement is common, the patient being very active and inclined to acts of violence and destructiveness.

The degree of excitement in these cases may become very great indeed, in fact exceeding anything we see in the other psychoses. When this extreme form was the only one recognized the disease was supposed to have a uniformly fatal termination.

In these severe cases the incoherence becomes absolute, disorientation complete, clouding of consciousness profound. Temperature usually develops and may be very high—106°. Gastrointestinal symptoms are common, there is almost complete anorexia, coated tongue, a frothy, offensive diarrhea, a high grade of indicanuria, great emaciation and a severe grade of exhaustion with typhoid symptoms followed in a large proportion of cases by coma and death.

Stupor with catalepsy may constitute an episode or be sufficiently in evidence to give its character to the attack.

Though the severe cases almost all die, the milder cases usually make good recoveries. Of all cases, perhaps fifty per cent. are fatal.

Many of these cases show at autopsy some acute disease, such as pneumonia, nephritis, that accounts for the symptoms. It is, of course, readily seen how difficult the diagnosis of conditions dependent on careful physical examination must be in these wildly excited cases.

These cases have a short duration, ending in recovery or death in a few days or at most a few weeks.

Acute Hallucinatory Confusion.—This psychosis is less acute than the former but of the same general nature, and may be described as an acute primary psychosis, characterized by clouding of consciousness, confusion, multiform and usually fleeting hallucinations in the various sensory areas, changing delusions, the emotional attitude being variable and in general corresponding to the content of the delusions. It may be of considerable duration, often many months. The course is somewhat irregular and not infrequently interrupted by *lucid intervals* which may be of only a few minutes' duration or may last a day or two. This is important to know, so that a lucid interval will not be definitely stated to be the beginning of permanent recovery.

As in the preceding form, stuporous states may intervene and for a considerable time dominate the picture.

Course.—Bonhoeffer[3] describes as occurring late in the course of the infection psychoses certain *hyperesthetic-emotional states of weakness, amnesic states*, resembling the Korsakow syndrome, the *collapse delirium* just described, and a *meningitic type* leading to coma and death.

Diagnosis.—The diagnosis is to be made in general from the association of acute confusion, multiform hallucinations, changeable delusions, disorientation, clouding of consciousness and variable emotional reactions, with specific infection, or coupled with the physical signs of exhaustion, great emaciation and fever. It must not be forgotten that certain other psychoses, particularly dementia precox and manic-depressive psychosis, may originate under the same conditions which lead to the development of the infection-exhaustion psychoses, and further, that aside from the

[3] Bonhoeffer: Die symptomatischen Psychosen.

condition of confusion described (*primary confusion*), states of infection and exhaustion may complicate any psychosis producing a confusion engrafted on the original mental disorder (*secondary confusion*). Recurring attacks of confusion should cause us to consider the possibility of some other psychosis.

Special care should be exercised in excluding delirium tremens and epileptic dream states. The characteristic hallucinations of delirium tremens are not present, while the anamnesis or scars about the head and face will indicate the presence of epilepsy.

Catatonic excitement is not accompanied by the signs of such great exhaustion or by such marked emaciation.

It will be seen, in general, that during the course of an infection-exhaustion psychosis symptoms may arise that closely simulate other conditions. It may be necessary to defer making a final diagnosis for a considerable time. Because of the frequency with which such psychoses as dementia precox arise as a result of acute illness one should be very guarded in the diagnosis and prognosis until the situation fully warrants definite statements.

Prognosis.—The course and outcome in this group of cases is characteristically benign, the psychosis subsiding with the subsidence of the infection. The occurrence of schizoid reactions should warn one of the possibility of an unfavorable outcome.

Nature of the Symptoms.—In this group the symptoms are seen to vary widely and out of relation with the etiological factor. The infection or the exhaustion or both as the case may be simply act as releasing agents which break down for the time being the repressing forces and permit the unconscious material to break through. It is this unconscious material released from repression and more or less distorted and disguised that constitutes the mental symptoms. This is the individual material and differs necessarily in each case.

In general it may be said that the hope that existed some years back that there would be found to be a picture at the psychological level that was quite as specific for a given infection as the other symptoms and signs at the clinical level has not been borne out. The symptoms tend to fall into a few groups only probably because the gamut of symptomatology of the neuron in process of destruction is a restricted one.

Treatment.—The treatment must, of course, where a specific disease such as typhoid is present, be in the main the treatment

of the underlying disease. Otherwise the treatment is supporting and sedative.

For the excitement the continuous bath or wet pack with the occasional exhibition of a hypnotic.

Forced feeding should be begun as soon as the patient begins to refuse food, as these cases have no strength to spare for the experiment of waiting to see whether they will eat.

The gastric disturbance in many of these cases is so marked that if the usual feeding is given it will be promptly vomited. Such cases should be fed small amounts often.

In the extreme exhaustion of the later stages hypodermoclysis may be used with beneficial results.

In a recently developed theory STODDART[4] accounts for the symptomatology by the dissociation of the neurones. He calls attention to certain symptoms of defect. On the psychological side defects in perception and on the neurological side anesthesia. These defects are brought about he thinks by dissociation due to heightened resistances at the neuronic synapses. He recommends strychnine on the principle of its action in lessening synaptic resistance.

[4] Stoddart, W. H. B.: A Theory of the Toxic and Exhaustive Psychoses. Jour. Ment. Sci., July, 1910.

CHAPTER XIV.

The Toxic Psychoses.

Toxins may be classified on the basis of whether they originate within the body—*endogenous*—or are introduced from without—*exogenous*. The former are often spoken of as *auto-toxins* and the conditions resulting from them as *auto-toxic* states or as *auto-intoxications*.

The psychoses resulting from endogenous toxins, dependent as they are upon various bodily diseases, will be discussed in the chapter on the symptomatic psychoses.

Alcohol.

The rôle that alcohol plays in the production of psychoses, while admittedly an important one, is not fully understood. Statistics,[1] conservatively interpreted, would indicate that about 12 per cent. of the insane confined in public institutions in the United States are there because of its influence, direct or indirect. When, however, the multitudinous ways in which alcohol may enter as a factor in the production of mental disease and the far-reaching effects it produces are considered it is readily seen that no statistical study can begin to fathom the problem.

While the psychoses considered under this heading seem to be closely associated with alcohol and in the main present fairly constant and characteristic pictures, it must not be forgotten that alcohol may enter as an etiological factor in the production of symptoms ordinarily considered to be quite distinct from the alcoholic psychoses properly so-called, such as the manic-depressive and dementia precox psychoses, while it is considered by some to be a very important causative factor in paresis.

When attacks of these psychoses are brought about by alcoholic indulgence it is probable that they are considerably modified as a result and present a somewhat atypical picture.

That the psychoses produced as the result of abuse of alcohol

[1] The Physiological Aspect of the Liquor Problem. Edited by John S. Billings, Boston and New York: Houghton Mifflin & Co., 1903.

are dependent, in the last analysis, upon something besides the alcohol, namely, upon some peculiarity of make-up of the individual, is well shown by the fact that, while a history of abuse of alcohol is frequent in cases admitted to hospitals for the insane, it is very rare to find at autopsy, what in general hospitals is considered so typical of alcoholism, namely, cirrhosis of the liver.[2] This means that the *locus minoris resistentiæ* in these cases was the brain and that mental disease supervened before the liver was so deeply involved.

Psychology.—Alcohol has long been supposed to be a stimulant. Such supposition, however, was based largely upon false interpretations of subjective experiences. For example, one feels rested from fatigue by a small dose of alcohol. The rested feeling was supposed to be due to stimulation. On the contrary, it is due to inhibition of the sensory channels conveying the sense impressions that make up the feeling of fatigue.

It has long been supposed that small doses of alcohol produced an increase in the power of muscular work and an increase in efficiency in the performing of simple mental tasks. This stimulation was supposed to continue for twenty minutes to one-half hour. The work of Rivers and Webber[3] indicates that such small doses produce no effect whatever. If they are correct alcohol then remains a depressant and paralyzant from the first without any effects of stimulation whatever.

The types of persons who drink and the reasons for drinking are many and varied. While there are certain social factors involved, the more important of the conditions lie in the make-up of the individual.

First there are the individuals for whom the drinking is the expression of a psychosis and in no wise its cause. Here are found especially the early cases of paresis and the mild cases of manic-depressive psychosis. The alcoholic symptoms may completely cloud the picture for some time.

Secondly there is a considerable group, to which belong those

[2] Mott, F. W.: The Psychoses of Chronic Alcoholism. Compte Rendu des Travaux du 1er Congrès International de Psychiatrie, de Neurologie, de Psychologie et de l'Assistance de aliénés. Amsterdam, 2 à 7 Sept., 1907.

[3] Rivers and Webber: The Influence of Small Doses of Alcohol on the Capacity for Manual Work. British Jour. of Psychol., Jan., 1908.

who drink "to drown their troubles," who attempt to escape from reality by introducing a veil between it and them, by making themselves less accessible to the world of reality by dulling their sensorium. These cases are comprised of hysterics and members of that large group of psychoneurotics. It should be remembered that the expressions of their difficulties are often periodic and that it is generally upon such a groundwork that dipsomania is found.

Thirdly there is a considerable group who are especially susceptible to alcohol and although not consuming large quantities manifest an exaggerated reaction to small doses. Here are found especially the post-traumatic constitution—cases following head injury and sunstroke—and arteriosclerotic and senile cases. These are the unresistive types, and alcohol, like fever, serves as a measure of their resistance and stability.

Fourthly alcoholism enters into, complicates, and modifies the picture of other psychoses, particularly dementia precox. Not infrequently precox cases are supposed to be alcoholic in their early stages because of the prominence of the alcoholic features.

Finally there are a certain number of purely alcoholic psychoses—that is psychoses apparently dependent upon alcohol per se. Of these psychoses those clearly dependent upon the effects of alcohol are the acute states of intoxication, including pathological drunkenness, while delirium tremens, alcoholic hallucinosis, Korsakow's psychosis, and the chronic alcoholic psychoses generally are dependent upon long indulgence in the poison in persons with some anomaly of personality make-up. Whether they are directly the further expression of chronic alcoholism or are in some way dependent upon the secondary elaboration of toxins, the result of disordered nutrition, they certainly need something besides the simple ingestion of a toxic dose of alcohol. Kraepelin proposes to call them, after the manner of the psychoses due to syphilis, the meta-alcoholic psychoses.

Drunkenness.—Alcohol, like fever, may be said to be a measure of cerebral resistance, the unstable, predisposed individual becoming intoxicated much more readily than the average.

The phenomena of drunkenness are, from the first, phenomena of paralysis. In the early stages it is only the higher psychic functions, which are largely inhibitive, that are affected, so we get apparent stimulation in the excitement produced with flight of ideas, pressure of activity, loss of the sense of propriety, degra-

dation of the moral tone and loss of power of voluntary attention. The lower centers then become paralyzed and then appears muscular incoördination, manifesting itself first in the hands and facial muscles and the muscles controlling articulation, the speech becomes thick and the gait unsteady. Sensory disturbances appear, such as diplopia, tinnitus aurium, and the senses of touch and pain are blunted. If the paralyzing action of the alcohol continues coma results, which may be fatal. The mood during intoxication may be a pleasant one, and frequently is one of boisterous exaltation, constituting the *exalted type;* on the other hand, a sad, depressive, lachrymose mood may prevail, constituting the *depressed type.*

Pathological Drunkenness.—Among certain predisposed individuals alcohol produces unusual and much more severe symptoms. In this condition hallucinations and delusions are found dominating the field of consciousness, the delusions being usually of a persecutory character. In other cases the excitement may issue in a wild maniacal frenzy or the depression may be so profound as to result in attempts at suicide. In some persons the paralyzing effects of alcohol are unusually pronounced and coma appears early on the scene. Those who have latent hysterical tendencies may have hysterical attacks during intoxication, while alcohol frequently produces convulsions in epileptics. Aside from this latter action, however, the convulsive properties of alcohol alone are capable of producing convulsions in persons who have long indulged and are profoundly degenerated, though some claim such persons must be of epileptogenic make-up.

In these cases of pathological drunkenness in which the reaction to alcohol is so pronounced it is quite common to find *amnesia* for periods of profound intoxication.

Delirium Tremens.—This disorder usually occurs as the result of a prolonged drunken debauch in a chronic alcoholic, during which the patient has had insufficient food and rest. According to some authors, it may result directly from the withdrawal of alcohol. It may, however, appear in the moderate but continuous drinker as the result of a single excess following a traumatism or as the initial symptom of an acute illness.

The whole question of the occurrence of an *abstinence delirium*

is a mooted one. The researches of HOLITSCHER[4] on this point are illuminating. The conclusion appears to indicate that abstinence delirium, if it occurs at all, is extremely rare. Care must be taken in reaching a conclusion to eliminate, as possible causes, wounds, infectious diseases, psychic shocks, operations, etc. It must be remembered also that in many cases the delirium has had a prodromal period of a number of days, and that one of the symptoms of this period is a disgust for liquor. The delirium, therefore, occurs in spite of, not because of, abstinence. The disease may appear suddenly, but there is generally a prodromal period during which the patient is nervous, with coated tongue, suffering from anorexia, restlessness, tremulousness, disturbed sleep and insomnia. This condition rapidly advances with the onset of the attack, the characteristic symptoms of which are rapidly developed. They are tremor, delirium and albuminuria.

The *tremor* involves more particularly the small muscles of the hand, face and tongue, but may also affect the entire musculature. It is increased by muscular tension, such as forcibly spreading the fingers apart.

The *delirium* is an acute hallucinatory confusion.

Disorientation is often quite complete, the patient, although perhaps fastened in bed, believing himself in his office or home, surrounded by familiar faces. The predominating hallucinations are visual and characteristically take on the form of animals. The patient sees all sorts of horrible creatures, snakes, rats, mice, alligators, etc., which are uniformly in motion. Surrounded by the loathsome creatures and by horribly grimacing faces, terrified by screams and shrieks (auditory hallucinations), he presents a picture of abject terror. In addition to these symptoms, the patient may complain that insects or worms are crawling under his skin (paresthesia) and mistake spots upon the bed or walls for bugs, mice, etc. (illusions). At the height of his excitement the patient is in constant motion, picking insects from his nightdress, repelling the approach of terrible animals; in the extreme frenzy of his fright, he may make murderous assaults on those about him, believing them to be his enemies, or perhaps attempt his own life to escape from his horrible surroundings. During all this time the patient is constantly talking, shrieking in fear at

[4] Holitscher: Zur Frage von den Abstinenzdelirien. Psychiat. Neurol. Wochen., Nos. 14, 15, 16, 17, 1908.

times, at others carrying on an incoherent discourse with imaginary persons, fragments of which often relate to his former occupation and friends.

The character of the delirious experiences varies greatly. One patient left the house in his night clothes and went a distance of several miles attired thus to the house of his sister. On reaching there he told them that his father and some Chinamen were going to kill him. Another patient came to the hospital with the history that he suddenly became disturbed one night and told his wife that he saw a troop of darkies dancing in his bedroom; they appeared to be rehearsing a play; he saw a strange man of giant stature jump off his bookcase into his wife's bed. He tried to chase these strangers from the room, and as they vanished he could see the skirts of the women and the heels of the men flitting past the doors; they would invariably return; their faces mocking him.

Some patients do not present this picture of extreme restlessness and the pressure of activity is not communicated to such a degree to the function of speech. Such patients may present an alert appearance, be fairly calm and can often be taken in the lecture room before the class.

The *mood,* too, may be quite different; from being in a condition of constant apprehension and fear of an overwhelming and terrifying environment, they may be calm, interested and amused by their delirious experiences. The patient just cited on his second day in the hospital was highly entertained by the appearance in the ward of a man with a monkey's body walking along the floor in a barrel, the bottom of which had been knocked out. Then there was the "human ironing board." This was a man's head nailed to an ironing board on wheels; the man spit tobacco juice about the floor and water squirted from his eyes. The patient was much amused by these experiences and told the doctor how he loved to lie in bed and watch them come and go. He thought these two monstrosities the property of the government and that they were intended for the amusement of the patients.

Another patient saw flocks of partridges about his room and a turkey an inch high on his window sill. Spiders and thousand-legged bugs came crawling on his bed. These hallucinations produced no surprise or disgust. He merely cited them as of passing interest while talking. His aunt's face was lying next to him on

the bed and he tried to kiss it. Another patient in the hospital saw about him numerous men of Lilliputian dimensions and displayed the liveliest interest in these strange little people.

Often dreamy hallucinations and delusions relate altogether to his occupation and the patient busies himself with his usual pursuits—*occupation delirium.* Physically he is in a condition of acute exhaustion. The pulse is rapid and of low tension, the temperature normal or only slightly elevated (occasionally high, the *febrile delirium tremens of Magnan*), the body bathed in a profuse perspiration and constantly agitated by muscular shocks and tremors. Occasionally one sees cases ushered in by all the typical prodromal symptoms, sweating, atonic dyspepsia, restlessness, tremor, precordial distress, anxiety and disturbed sleep, which do not proceed to the typical condition of mental confusion with multiform hallucinations. This is the so-called *abortive* type, the *delirium sine delirio* of Dollken.

During the course of the disease almost any experience the patient may have, any impression made upon his sensorium is woven into the warp and woof of his delirious experiences—*sensory flight of ideas.* Hallucinations seem to arise spontaneously or are easily produced by pressure on the eyeball or merely by getting the patient to look at a blank piece of paper. *Paraphasia* and *paralexia* are commonly present.

Albuminuria is found in a considerable proportion of cases, probably considerably over 50 per cent., during the early stages. At the height of the delirium *leucocytosis* has been found. It must not be forgotten, too, that here, as in acute toxic states generally, a sluggish reaction of the pupil to light and even complete Argyll-Robertson pupil may be found. This sign disappears, however, on recovery. This is an important fact to be borne in mind in the matter of diagnosis. Whether it means the presence of syphilis, as some suppose, can be determined by blood tests.

Acute cardiac dilatation may develop at the height of the disease.

Course and Duration.—The psychosis runs an acute course of about three days and terminates in recovery in the majority of cases. The delirium usually ends in a long sleep. About 10 to 15 per cent. die.

Pathology.—Degenerative conditions are found in the central nervous system—acute degenerations of the ganglion cells, and

recent hemorrhages. The ganglion cells are found shrunken and there is increase in the glia and some vascular proliferation with slight round-celled infiltration. There may be a chronic leptomeningitis and some narrowing of the cell layers of the convolutions. Changes are also found in the cerebellum. The alterations in the Purkinje cells are supposed to be correlated with the motor symptoms—tremor and ataxia (KRAEPELIN, ALLERS).

WASSERMEYER is of the opinion that the pathology indicates that the delirium results from an increase in the chronic alcohol poisoning rather than a metabolism poison.

Chronic Alcoholism.—The effects of chronic alcohol poisoning are exhibited in every organ of the body, more particularly the central nervous organs, stomach, pancreas, liver, kidneys and blood vessels, and give rise to characteristic symptoms as a result, the most prominent of which are tremor, gastric catarrh, arteriosclerosis, albuminuria and progressive mental enfeeblement.

The effects on the nervous system are shown in disturbances of sensation, motion and the intellect. The *sensory* disturbances are paresthesia (prickling, tingling, formication), hyperesthesia and hyperalgesia and anesthesia. The sensory disorders of the special senses involve principally the eye and ear, producing illusions and hallucinations, muscæ volitantes, photopsia, amblyopia and amaurosis, diminution of the acuteness of hearing with the production of subjective noises (hissing, ringing, roaring, etc.), due to middle or internal ear disease.

The *motor* disturbances are tremor, spasms and cramps, epileptiform attacks, general motor enfeeblement with paresis.

The *mental* changes are gradual and progressive, the intellect is obtunded, the judgment overthrown, the moral sense blunted, and mendacity appears in its most bizarre forms; delusions may develop, the most characteristic of which is marital infidelity and jealousy, and the patient sinks gradually into a condition of permanent mental enfeeblement.

Diagnosis.—Alcoholic dementia is to be differentiated from other dementias largely by the history. It will have a history of progressive mental enfeeblement closely associated with alcoholic indulgence.

GRAETER[5] has called particular attention to the association of

[5] Graeter: Dementia Præcox mit Alcoholismus Chronicus, Leipzig, 1909.

alcoholism and dementia precox. Many of the cases of mental deterioration associated with overindulgence in alcohol will be found to be true cases of precox in which the alcohol is only an incidental and associated feature.

Alcoholic Pseudo-Paresis.—On a groundwork of mental enfeeblement the alcoholic may develop a true expansive delirium which, combined with the signs of alcoholism (ataxia, speech defects, tremor, pupillary anomalies and muscular weakness), may make the distinction from paresis difficult—*alcoholic pseudo-paresis*. This similarity to paresis is noticeable even when the expansive delirium is absent in cases in which the mental reduction is marked, but becomes greatest when the symptom complex above outlined is ushered in by epileptiform attacks.

Diagnosis.—The distinction from true paresis can usually be made. Pupillary inequality is more common and the permanent results of apoplectic insults (hemiplegia, aphasia) more often found in the alcoholic form than in the true. The results of polyneuritis should be looked for and if found suggest alcoholism. The most reliable differential sign is found in the course of the two maladies. True paresis is progressive, tending toward ever-increasing degradation, while in the alcoholic form removal of the poison results very shortly in a remission of all the symptoms, even, in some cases, amounting to a recovery. The symptoms, however, reappear subsequently if drinking habits are returned to.

It must not be forgotten that an Argyll-Robertson pupil may be transiently present. When there is a question whether both this sign and the whole pseudo-paretic picture may not be dependent upon the presence of syphilis blood tests should be made.

Alcoholic Epilepsy.—As a result of chronic alcoholic toxemia, the symptoms of which are marked throughout by their explosive character, it is not strange that actual convulsions, alcoholic epilepsy, should complicate the morbid picture. These convulsions, so far as their individual characteristics are concerned, are indistinguishable from true epilepsy. Occurring, however, in a person beyond the period of adolescence who is addicted to the immoderate use of alcohol, their origin should be suspected. The diagnosis is made clear if they cease upon the withdrawal of alcohol. As this sometimes does not occur the diagnosis can be

made only by excluding the causes both of true and symptomatic epilepsy other than from alcohol.

Alcoholic Hallucinosis.—This psychosis may come on suddenly in a chronic alcoholic, following an unusual excess, or it may be of gradual evolution. It is sometimes preceded by one or more attacks of delirium tremens. It is characterized by hallucinations, auditory predominating, thus contrasting strongly with the predominance of the visual hallucinations in delirium tremens.

The delusions are of a persecutory nature, in which the sexual element is frequently prominent and show a tendency to systematization. The system, however, is of rapid growth and loosely organized.

Schneider[6] as a result of a study of a series of cases does not believe that this psychosis is sufficiently explained by alcohol. He draws attention to the facts that attacks of hallucinosis occur altogether aside from alcoholic indulgence; that other sorts of psychoses may result from alcohol; and that many drink to excess without developing a psychosis at all. He also notes that patients may have had many previous debauches without a psychosis. He therefore believes that the make-up is an important element, but that the psychosis occurs only as a result of a psychogenic precipitating factor in addition to alcohol and that the content of the hallucinations is determined by this factor. Pohlisch [6a] comes to a similar conclusion in that he found a number of cases of acute hallucinosis due to alcohol do not terminate in recovery, but in a mild schizophrenic process.

Whether of sudden or gradual onset, the first symptoms are hallucinations, with which persecutory delusions are intimately bound up. The patient hears voices making all sorts of inimical remarks, telling him that his children are not his own, calling him an onanist, reviling or threatening him. In every way his persecutors annoy him by their malign comments. Visual hallucinations are rare. Hallucinations of smell and taste are not infrequent. The auditory hallucinations, quite characteristically,

[6] Schneider, Carl von A.: Studies on Alcoholic Hallucinoses. Psychiatric Bulletin, Jan., 1916.

[6a] Polisch, Kurt: Zur Pathogenese der akuten Halluzinose der Trinker. Monatschr. f. Psychiat. u. Neurol., Vol. 63, Nos. 1 and 2, Feb., 1927, p. 82.

tend to fall into rhythm with outside sounds, as, for example, in one of my cases,[7] the humming of a dynamo.

The delusions of this state harmonize well with the hallucinations. The patient is persecuted by invisible enemies who inject noxious vapors in his room at night, poison his food, draw off his semen, and produce nocturnal pollutions.

One patient heard voices of enemies whispering at the windows; they were going to kill him, called him a variety of unpleasant names and accused him of all sorts of crimes. The patient attempted suicide. He gives a history of being troubled with noises in his ear for a considerable time, resembling the click of a telegraph machine. When he is drinking these noises become voices. Another patient thought he heard different people talking about him, cursing him, and calling him vile names. Then later he thought he heard his thoughts repeated. While on his drinking bout he wandered about aimlessly, felt that he was being pursued and heard threats made against him. Bought a knife and walked into the water. In the hospital he heard his old friends accusing him of sexual perversions, pederasty, etc. Tells of having heard his associates say, "He is no good; we will get him out of the army," and "He is a sucker for fixing a horse instead of allowing the veterinary to do it," etc. Another patient, a sailor, had been drinking heavily while on shore. When three days out at sea he began to hear threats against him. He heard the men say that they would kill him, they would cut his heart out, and cut him into fifty thousand pieces. On the evening of the third day he could stand it no longer and thinking that he saw land ahead he jumped overboard.

Grandiose delusions do, however, occasionally occur, though they are not sufficiently controlling to modify the picture in any essential way. A case cited by MITCHELL[8] shows how they usually manifest themselves. In this case, in the midst of an active hallucinosis, during which the patient was constantly hearing voices coming from the air, and out of the floor, and the passing trains were whistling his name, and while he saw faces staring at him from the walls, he had an episode during which he

[7] White: A Case of Unilateral Hallucinosis (Alcoholic). Bulletin No. 1, Govt. Hosp. for the Insane.

[8] Mitchell: Types of Alcoholic Insanity, with Analysis of Cases. Am. Jour. of Insanity, Oct., 1904.

assumed charge of affairs, gave orders, and threatened with death the doctors who refused to obey. Bonhoeffer[9] only gives one case with grandiose ideas, which, however, were only of temporary duration during the course of an hallucinosis with auditory hallucinations of a distinctly threatening character, and one case in which the patient heard music, but otherwise had disagreeable hallucinations.

In this state the patient is depressed, apprehensive, often fearful of impending danger, may have anxious and angry states, and often reacts by attacking his supposed persecutors. Throughout this condition the patient is well oriented and consciousness is clear.

Some of these cases run a long course and become chronic.

Diagnosis.—The diagnosis from delirium tremens is made by the absence of disorientation and by the marked prevalence of auditory hallucinations in the form of threatening voices. It must not be forgotten that there exist cases which are intermediate in their symptomatology between delirium tremens and acute hallucinosis. From paranoia the distinction is made by the very rapid systematization of the delusional system, as opposed to the slow evolution in that disease.

Alcoholic Pseudo-Paranoia.—In some cases of chronic alcoholism a paranoid state is developed, in which psycho-sensory disturbances (hallucinations) may be of secondary importance or not present at all. The characteristic delusion in these cases is that of marital infidelity.

While some of these cases develop primarily upon a background of chronic alcoholism, others may follow directly upon an attack of hallucinosis or delirium tremens.

These cases have a long course, poor prognosis and may terminate in considerable impairment.

Diagnosis.—This delusion of marital infidelity and jealousy may not be accompanied by any noticeable degree of impairment of judgment or mental enfeeblement, and in these cases it may be extremely difficult to make a differential diagnosis between this form of alcoholic psychosis and true paranoia. Particularly is it difficult to recognize paranoia with subsequent or coincident alcoholic indulgence.

[9] Bonhoeffer, K.: Die akuten Geisteskrankheiten der Gewohnheitstrinker. Verlag von Gustav Fischer in Jena, 1901.

Certain other paranoid conditions, especially of the involution period, may present this picture with the characteristic delusions of jealousy.

Differentiation is made by excluding alcohol in the anamnesis.

Korsakow's Psychosis.—The mental state of this psychosis accompanies polyneuritis and is usually of alcoholic origin, but may be caused by other poisons, as those of typhus, tuberculosis, influenza, diabetes, the metallic poisons, etc., and the Korsakow syndrome is seen not infrequently in general paresis and in senility. The signs of polyneuritis may be very slight.

Symptoms.—The patient is a chronic alcoholic and may enter the hospital suffering from delirium tremens. The delirium instead of clearing completely, as is usual, merges into Korsakow's psychosis which has often been called chronic alcoholic delirium in contradistinction from delirium tremens which is an acute alcoholic delirium.

The mental symptoms are the result of a characteristic combination of attention and memory disorder. The result is a peculiar type of amnesia. There is a defect in the recording of present events resulting in an anterograde amnesia. In more severe cases this amnesia may reach back a considerable distance—retrograde amnesia—but the events of early life and long distant occurrences are well remembered.

This defect of memory is associated with a composed bearing and apparent lucidity on casual questioning. A more careful examination, however, will show not only this memory defect, but probably also that the patient is disoriented as to time and place.

The characteristic symptom is associated with the amnesia and consists of a peculiar *falsification of memory*. The gaps in memory are filled by all sorts of *fabrications* which are narrated in great detail and with a perfect appearance of lucidity—*opportune confabulation.*

A patient who has been confined to his bed for days with foot- and wrist-drop tells me, when asked where he was the day before, about having gone to the races and details his conversation with different persons, describes the events, tells what horses won and the like.

One such patient says to the physician on approaching the bed: "I am pretty sleepy. I have just had a nap over home and I came over here to lie down again." Asked if his wife had been

to see him lately (she had called the day before), said that he saw her two days ago and added: "I was just out there at the front window a few moments ago to see if she was coming." Being questioned as to what he had for dinner yesterday (he was on a milk diet), said he had "Some delicious New York plums, the usual vegetables, and cocoa."

Often delirious experiences seem to be related to the neuritic pain. This same patient told once how a big, black, burly, ugly negro grabbed his sore legs two days before and how it made him angry.

Another patient tells how two years ago he was chloroformed by unknown parties. He awoke just as they had escaped from the room and saw a machine on his right foot. (He suffers from pain and weakness in this foot and ankle.) This was crushing the tendons of the instep. He immediately dropped off to sleep again. When he awoke the next morning the instrument of torture had been removed, but he suffered from pain and weakness in that right foot and also to some extent in the left foot.

In many cases the fabrications can be suggested by leading questions and the patient may be led to make almost any statements, no matter how contradictory—*suggestion confabulation.*

One patient, confined to bed, asked what he did the day before, replied: "I took the horse and buggy out and took a drive, my father being in Baltimore; I don't know whereabouts I had him fed; I went down Pennsylvania Ave. and Fourteenth Street."

Another patient, when asked what she had for breakfast, proceeded to give a bill of fare, none of the articles of which she really had had.

These *pseudo-reminiscences* are usually unstable and fleeting, or at least seldom told twice alike. Such for instance is the following: "A few weeks ago I was out walking on the Washington Heights, you know, just beyond the Treasury, with a friend. It was during lunch hour at the office. We saw some cattle grazing on the hillside and we thought we would have a little shooting match. I went down to the man and he gave me a gun and I fired away and hit a steer right behind the ear. It, of course, killed him. They all laughed and considered me a crack shot. They sent me a check for it the next day. It was for a pretty large amount but I do not remember just how much.

I suppose by looking up the records I could find just how much they did give me."

Sometimes, however, some of them become fixed. It is fairly common, for example, for women to believe and act as though they had a baby in bed with them.

With this state of mind the patient is usually very poorly oriented if not completely disoriented. His time sense is particularly affected.

Physically the patient typically has all the signs of a polyneuritis which of course differs in its distribution according to the etiological factor. In the alcoholic type, which is the most common, wrist- and foot-drop are characteristic symptoms. Of course various unusual and anomalous involvements may occur, for example, of the cranial nerves. Bulbar and vagus involvement are naturally most serious.

Inasmuch as the *pathology* of the disease shows that it is not confined to the peripheral nerves, but is general, involving the whole of the nervous system, cord, basal ganglia, and cortex and inasmuch also as there seems to be some tendency to the focalization of the pathologic process, we might expect to find, and as a matter of fact do find in certain cases, focal symptoms. These are the various types of aphasia, apraxia, reading and writing disturbances, homonymous hemianopia, etc.

When the focalization of the pathological changes takes place in the mid-brain it produces the syndrome of *acute hemorrhagic polioencephalitis* of WERNICKE, a very serious involvement, typically ushered in by severe vomiting, followed by delirium, vertigo, and sometimes headache and somnolence, various ocular palsies, and perhaps complicated by optic neuritis. Death usually ensues in from one to two weeks.

Pupillary disturbances are not infrequent. Inequality of the pupils, sluggishness to light and accommodation reflexes, and transitory Argyll-Robertson pupil may be present. More rarely various kinds of ocular palsies or muscular weaknesses occur.

Clinical Forms.—Various clinical types of the disease have been described according to the prominence of special symptoms. Thus DUPRÉ[10] describes five as follows: (1) Amnesic, (2) con-

[10] Cited by Jelliffe: The Alcoholic Psychoses. Chronic Alcoholic Delirium (Korsakoff's Psychoses). New York Med. Jour., Oct. 24, 1908.

fusional, (3) delusional, (4) anxious, and (5) demented. KNAPP[11] describes eleven forms: (1) Delirious, (2) stuporous, (3) demented, (4) hallucinatory without systematization of false ideas, (5) hallucinatory with systematization of false ideas, (6) paranoid, (7) anxious, (8) expansive, (9) manic and melancholic, (10) polyneuritic motility psychosis (of WERNICKE), and (11) anomalous. Of course it will be understood that this separation of forms of the disease is nothing more than giving the name of the most prominent symptom. Thus in the stuporous type stupor is especially in evidence, etc.

Diagnosis.—The association of the peculiar falsification of memory with confabulation and usually disorientation with foot- and wrist-drop is characteristic. Paresis is to be distinguished by the absence of evidences of polyneuritis.

Dream States.—Less common and more unusual effects of alcohol are the conditions of so-called *trance, automatism, double consciousness, spontaneous somnambulism,* which are followed by *amnesia.* In these conditions the subject of alcoholism may do almost anything imaginable, make contracts, transfer property, commit criminal acts, take long journeys, enter into complicated business or professional transactions, and later have absolutely no knowledge of what he has done. During a protracted debauch the subject may suddenly start off on a journey and travel under an assumed name, meanwhile conducting himself in such a manner as not to lead to any comment on the part of those whom he meets. Suddenly, without warning or after a night's sleep, he "wakes up" to a realization of his true situation with absolutely no memory of how he got where he is or what he has been doing since he started away from home. As the name indicates, this condition has been described as one of automatism, but a moment's consideration will serve to show that acts of such a complex character cannot be automatic acts. The fact that no recollection remains of what was done has been used to argue unconsciousness, but that is equally inconceivable. Hundreds of miles could not be travelled by an unconscious man without attracting attention. The mere fact that the patient has forgotten what occurred is no reason why he must necessarily have been unconscious. I have been fully able to demonstrate that consciousness actually

[11] Knapp: Cited by Jelliffe, *loc. cit.*

did exist in certain cases that I have studied which were followed by amnesia, and as a result I am convinced that the same condition might be found to exist in others. Some persons are especially liable to this form of mental disturbance, and it may repeat itself on the occasion of renewed intoxication. Its psychopathological basis is probably a dissociation of consciousness.

Dipsomania.—A periodical impulse to drink—is an expression of deep-seated neuropathic taint.

Interpretation.—READ[11a] sums up the psychology of alcoholism, so far as it relates to the psychoses, about as follows: Alcohol is taken to promote the social instincts and to alleviate and narcotize the many mental conflicts to which we must all to some extent be victims. He thinks it thus becomes a psychological necessity in modern civilization. In excess it tends to destroy sublimation and aid regression and in this way may precipitate a psychosis. The regression may be of various degrees and may bring into conflict with the personality, different impulses and desires previously more or less successfully repressed. Of these, the homosexual impulse is found on analysis to be the most frequent, the resulting conflict being very liable to result in paranoid states. A deeper study of the so-called alcoholic hallucinoses and paranoid psychoses reveals psychogenic factors which should be looked upon as the real pathological basis of the abnormalities. Dipsomania most assuredly has a psychogenic basis. It must be noted, too, that with the aid of alcohol the psyche defends itself against mental pain, pleasure is gained by the freedom from inhibitions and compensations occur, though often at the expense of sanity. If these views are in any way true, many of these psychoses should be differently classified.

Course.—Chronic alcoholism, whether interrupted or not by any of the forms of mental disturbance described in this chapter, tends to an ever-increasing dementia, *alcoholic dementia.* Mental enfeeblement is a symptom from the outset and is noticeable at first in the esthetic and moral sphere. The previously proud, well-dressed man becomes slovenly in his habits and unkempt in his appearance. Incapable of the close and continuous mental application of former years it becomes impossible for him

[11a] Read, C. Stanford: The Psychopathology of Alcoholism. Jour. Ment. Sc., July, 1920, p. 233.

to meet the requirements of his business or professional life and lying is resorted to in finding excuses. This is followed by moral obliquities of a more serious nature in which the sexual element is apt to predominate and result in medico-legal complications. Memory is early and noticeably affected. The everyday affairs of life are forgotten, so that the subject of alcoholism neglects to keep appointments, forgets important business engagements, etc. Judgment and the reasoning faculties are similarly enfeebled, until finally the most profound degree of dementia is reached, hastened perhaps by apoplectic insults which are not uncommon.

Pathology.—The gross pathology of alcoholism has already been indicated. Cirrhotic liver, chronic nephritis, fatty heart, chronic gastritis, arteriocapillary fibrosis, cerebral arteriosclerosis and cerebral hemorrhage.

The principal lesions found in the brain are pachymeningitis, edema, congestion, thickening and opacity of the piarachnoid, atrophy of the convolutions, sclerosis of the vessels, degeneration of the cells and increase of neuroglia.

The mistake should not be made of attributing everything found at autopsy to the alcohol. Alcoholism is a symptom of an underlying psychopathic state, the stresses of which need to be considered as factors in their own right in interpreting any terminal pathological conditions.

Treatment.—The treatment of *delirium tremens* and the other *acute* alcoholic psychoses should be supporting; liquid concentrated food predigested if necessary. The bowels should be kept free and the kidneys kept flushed by a goodly supply of fluid. Heart stimulants are often necessary, digitalis, caffeine, strychnine, to combat cardiac failure, and hypnotics to induce sleep and give rest. The latter should be carefully selected with reference to the patient's condition, depressing agents, such as chloral, giving place to safer ones as trional if there is much heart embarrassment. The after-treatment consists of abstinence from alcohol, tonics, nourishing food and regulation of the emunctories.

For the excitement especially hydrotherapy in the form of the continuous bath is valuable. The thing to be kept constantly in mind in these cases is the matter of nourishment. If the patient does not take sufficient food tube feeding should be begun at once without any delay in temporizing. Food alone will often

ameliorate in a remarkable manner the excitement and the insomnia.

The medical treatment of *chronic alcoholism* should be tonic and supporting. Strychnine for a general nervous and cardiac stimulant, ergot if there be symptoms of "wet brain," capsicum and bitter tonics for the gastric condition of anorexia; attention to the emunctories, moderate exercise, baths, massage and electricity for their general tonic effects; sedatives and hypnotics with caution; a modified "rest treatment" if there is marked neurasthenia, and later a sufficient amount of mental and bodily exercise to keep the patient healthfully occupied. LAMBERT has had marked success with Livingston[12] solution.

The matter of isolation is an important one. I feel convinced that in all cases in which the habit is firmly fixed isolation is highly desirable, if not imperative, as in these cases the patient is unable to resist temptation and, as soon as opportunity presents itself, will lapse. After confinement for a few months, during which the patient is restored as far as possible to physical health, he is in condition to abstain if he wants to and is able; if he does not wish to or if he suffers from too great weakness of will, he will return to his old practices. If he does wish to stop drinking, however, he has been given the best possible opportunity, an opportunity which should be early extended in all cases but not offered when because of long-continued indulgence the case is of necessity hopeless.

A psychoanalytic approach to the patient's problems is of course indicated and could be carried out to the best advantage during the period of isolation.

OPIUM.

Cause.—As in other varieties of narcomania the most important cause is the neuropathic diathesis. In this class of patients the habit is often initiated by the use of morphine to relieve the periodic pains of neuralgia, tabes, dysmenorrhea, rheumatism, etc., or the mental depression incident to worry, loss of position, grief and the like.

12 Livingston's solution is one drachm solid extract ergot dissolved in an ounce of sterile water + three drops chloroform and three grains chloretone and filtered. Give thirty drops hypodermically every two to four hours into muscles of gluteal region or deltoid—never subcutaneously.

Symptoms and Diagnosis.—The symptoms of a single dose are at first those of mild stimulation of the mental faculties followed by a period of quiet, half-waking, half-sleeping, interrupted by multiform pleasant hallucinations (predominantly visual) which show no tendency to delusive elaboration in the waking state. This condition is followed by malaise, headache, dry mouth, constipation and nausea.

The physical symptoms of prolonged use of opium in any of its forms are anorexia, irregular action of bowels, constipation alternating with diarrhea, cardiac weakness, general muscular weakness and tremor, miosis and sluggish pupils, impotence, amenorrhea, diminished sensibility, paresthesias, sensation of coldness.

Mentally there is a gradual degradation. The memory and power of attention become impaired and the capacity for initiation is lost. There is marked impairment in the ethical feelings and previously honest persons will begin by lying out of business engagements and about the taking of the drug and end by associating with the most degraded persons and resorting to any means whatever, even criminal, to obtain the drug.

Some persons who have taken opium in some form for a considerable time and in large doses develop an hallucinated state that may be of paranoid coloring or may be distinctly delirioid. Thus one patient (laudanum and whiskey) on admission to the hospital said that her food was poisoned. Another patient (morphine) is restless and excited, has hallucinations of hearing and carries on conversation with imaginary persons. Sometimes her language is violent and abusive, she threatens her imaginary persecutors and will jump out of bed and run through the hallway looking for the people she thinks are after her.

The diagnosis can often not be made without the anamnestic data. The patients frequently deny their habit—mendacity is a prominent symptom, and they are often cute enough to find means of indulgence even though carefully watched. The moral degradation is pronounced and they will go any length to obtain their drug. Symptoms which should excite suspicion are periods of torpor and languor in marked contrast to the activity of alcoholism, amounting at times to an inability to even sit up, occasional signs of stimulation, small pin-point pupils, yellowish-brown cachectic complexion, and, above all, the numerous scars of hypo-

dermic injections. In conditions in which a diagnosis is necessary it is to be remembered that morphine can be recovered from the urine and stomach.

The least serious method of taking the drug is by smoking, the next more serious by mouth, and the most serious method is the hypodermic. Morphine is distinctly more dangerous, more dominating after habituation, than the other forms. It is, too, more serious in its effects upon the general health.

Prognosis.—The prognosis is not good and except in such cases as are not complicated by neurotic or psychopathic taint or disorders relieved by opium, recovery is hardly to be expected.

Pathology.—Opium has much less tendency to produce tissue degeneration than alcohol and many persons continue for years to take small doses with little apparent harm.

Treatment.—The treatment of morphinism has to do with the removal of the drug and the symptoms of abstinence. Isolation is more necessary than in alcoholism, as these patients make more effort to obtain their accustomed stimulant surreptitiously. It is well, in accordance with DERCUM's suggestion, not to begin stopping the drug until the patient has been under treatment for a time, confidence established, and the general health raised to the best standard. The *ration de luxe* can then be rapidly withdrawn, in accordance with the method of ERLENMEYER,[13] leaving the patient on about 0.15 to 0.20 gm. morphine per diem, below which amount serious symptoms are apt to present themselves. From this point on the withdrawal should be gradual. Symptoms of abstinence, if they appear, are referable to the heart, stomach, bowels and nervous system; they are circulatory failure, respiratory disturbance, pyrosis, vomiting, diarrhea, tremor, general debility, an hallucinatory delirium and sometimes profound collapse. BALL has called attention to pollutions and erotomania which may result from abstinence. For the cardiac weakness digitalis or sparteine hypodermically should be used; for the pyrosis, bicarbonate of soda; vomiting and diarrhea should be treated in accordance with general principles (bismuth, etc.), opium being avoided. If the mental and physical symptoms become grave morphine should be given and will usually relieve them. The

[13] Erlenmeyer, Albrecht: On the Treatment of the Morphine Habit, 1889.

evening dose should be omitted last, to combat any tendency to insomnia, and full feeding, massage and hydrotherapy are valuable adjuncts.

Rapid methods of withdrawal associated with specific vagotonic or sympathicotonic drugs, calomel and beladonna primarily, when carefully and vigorously carried out are often very efficacious.

Livingston's solution may be used as in alcoholism (see p. 292). It is necessary to call attention to the danger of cocaine for this purpose. Codeine has also sunk into disuse and the synthetized derivatives of morphine, heroin, dionin and peronin cannot be said to be any better, except as temporary substitutes and aids to reduction. Their use is founded on a wrong theory and is fraught with danger. Cases of serious addiction to codeine and heroin have been reported.

In the rapid method of withdrawal hyoscine, scopalamine and atropine are useful, with pilocarpine as a corrective, to help the patient over the period of the most severe craving. In the method of gradual reduction codeine and dionin may be used temporarily to replace morphine and strychnine used as a stimulant. Rapid withdrawing may be tried if there is sufficient coöperation on the part of the patient and his physical condition will warrant it, using atropine for the sympathetic collapse and pilocarpine and eserine for autonomic stimulation.

Psychoanalytic treatment is fundamental.

Cocaine.

Cause.—Addiction to this drug has in a great many cases come about by attempting to substitute it for morphine, and as a result pure cases of cocainism were formerly more rare than at present. Cocaine has been used so much of late in dentistry, minor surgery, and especially nose and throat work, that a knowledge of it has become more or less general. The victims are often those who have commenced its use for its analgesic effects and are frequently physicians.

Symptoms.—The symptoms resulting from the use of cocaine are those of marked stimulation. The pulse is increased, pupils are dilated. The patients are active and extremely talkative, often repeating remarks a number of times; they are constantly busy, some of them writing endless letters, and their whole

appearance indicates an acute intoxication. The effects are, however, very fleeting and the dose has to be frequently renewed. Chronic addictions result in marked emaciation, cachectic anemia, insomnia, sometimes epileptiform attacks and various paresthesias, the most marked of which is a sensation of crawling under the skin ("cocaine bug"). In the psychic sphere occur incapacity for mental application, lessened moral sense, mendacity, irritability, impaired judgment and sometimes the delusion of marital infidelity. These symptoms may be followed by mental confusion with hallucinations, but more characteristically by a paranoid state. From true paranoia this is differentiated by the greater variety of delusions, those of paranoia being less variable, rather noticeable for their monotony. In the paranoid state of alcoholism, on the other hand, the hallucinations are more stereotyped.

The abstinence symptoms are not so severe as with morphine and may not appear for several days. ERLENMEYER has called attention to a profoundly depressed, lachrymose, demoralized condition, with moaning and sighing which may supervene. The persecutory delirium may persist for a long time and constitute the patient a very dangerous individual.

Morphine and cocaine addiction may also activate a latent neuropsychopathic state, with symptoms of psychasthenia—morbid impulses, insistent ideas, etc. One such patient suffered from a convulsive tic with mental depression and suicidal impulse. Recovery followed prolonged abstinence.

Treatment.—Isolation should be insisted upon. The drug may be withdrawn rapidly as the symptoms of abstinence are not as marked as in morphine. Livingston's solution may be used (see p. 292).

Psychoanalysis is the only rational therapy.

The prognosis of deprivation is good, but relapses are pretty apt to occur.

MISCELLANEOUS INTOXICANTS.

Various other drugs may produce marked mental disturbances as a result of acute or chronic poisoning or habituation. The limits of this work permit only of their mention. They are chloral, cannabis indica, somnal, sulfonal, aspirin, paraldehyde, ether, chloroform, antipyrin, phenacetin, trional, chloralamid,

iodoform, belladonna, hyoscyamus, salicylic acid, quinine, the preparations of lead, arsenic and mercury and the bromides.

It should be realized that many of these drugs are drugs in common use and that unless the possibilities of their producing a psychosis are borne in mind such an accident may arise as the result of large doses or even of moderate doses in especially susceptible persons. It is just such cases as these, together with the cases that arise as the result of taking several drugs, analgesics and hypnotics, that one meets and finds that no suspicion has arisen as to the true cause of the trouble. Attention has been called to the frequency of bromide delirium (O'Malley and Franz,[14] Casamajor[15]). Casamajor has called particular attention to the frequency with which bromide delirium is produced in the treatment of alcoholism.

The character of the delirium in these cases is best described as dream-like. The content of the delirious experiences remind one of delirium tremens, while the tendency to confabulation reminds one of Korsakow's psychosis. The patients are not usually apprehensive and restless as in delirium tremens, but more composed and may be dull and stupid, though there are not infrequently outbreaks of violence dependent upon paranoid experiences. The following extracts from cases will illustrate these points:

The patient, a woman, æt. 36 had been taking morphine hypodermically and bromides, chloral, and hyoscine hydrobromate. On admission saw men in rubber garbs who stay in the water and look at her constantly. she also sees the king and queen, bugs and snakes, and bull-dogs with huge open mouths. Says the king and queen congratulated her when she picked up the broken glass at F—'s on 9th St. She hears bull-dogs scream and answers imaginary voices. Electricity is played on her by Dr. B— and she feels snakes which crawl about her neck. Says there are men who throw green powder about the room.

Another patient, woman, æt. 38, had been taking antirheumatic treatment with aspirin to relieve pain and later morphine and hyoscine. She related the following delirious experience that occurred just before admission:

"I believed that a party of us were going down in the country on a picnic and that a cavalry regiment has been ordered out. When we got started, we found that a whole regiment of Indians and negroes were following us. We went to the place in the country where I was born and

[14] O'Malley and Franz: A Case of Delirium Produced by Bromides. Bulletin No. 1, Govt. Hosp. Insane.

[15] Casamajor: Bromide Intolerance and Bromide Poisoning. Jour. Nerv. and Ment. Dis., June, 1911.

brought up, and there we found a hospital which was to be used for caring for us until the negroes and Indians were allowed to kill us. The patients in the hospital were all in little beds just like at Providence but were all sitting up. The doors were locked so that we could not get out, but I could hear the negroes and Indians talking about killing us. They decided to divide the party up and take us to their different camps. They also talked of blowing the hospital up with dynamite. They talked of setting fire to a haystack that was situated near my mother's home. I heard them preparing fuse which was to be used in exploding the dynamite. I was dreadfully afraid all the time I was at Providence Hospital and felt that I was among enemies. I thought the nurses were trying to do the best they could for me but that they were in the employ of the Indians and negroes."

Another patient, female, æt. 37, took "bromo-quinine" for two weeks, when she developed a delirium. The following is the substance of a letter she wrote while suffering from the delirioid experiences. "Just go there, I cannot talk, I am under a terrible spell, I do not know what it is, but it is the most wonderful experience I ever had. I am hypo, I am hypnotized. I may be in a trance for three months. Do not for God's sake, bury me alive—Molly. Keep me out of the grave four or five months. It will be all right. You will hear some things that will surprise you. Ben, go in that room for God's sake, there is a man in there, he scares everybody dumb, I cannot talk, but for God's sake, break down that door. Take Jack, he has got a good strong arm, break that door down. That poor man is suffering, I saw him do something terrible, and it awed me so I am half paralyzed. For God's sake, break that door down, hurry up."

A case of bromide delirium (reported by O'Malley and Franz) had taken on an average 300 grains of bromide daily for fifteen days. Her case illustrates well the dream-like character of the hallucinatory and delusional experiences. She was disoriented on admission. Three days later said she had spent the night in the city, was with a large crowd of men and women, that her husband was dead and that she had seen his body buried. The next day asked where she had been the night before said, "I was over to the gypsy camp; I went over in northeast Washington and saw them kill my husband—smash his head; his brother, who is a sculptor, made a form of his head; I saw it; he will be buried to-morrow." A few minutes later her husband visited her. She told him she thought he was dead, took him to task severely for putting her in the hospital and being unkind to her, but throughout the visit insisted that he had been killed. Six days after admission she still had visual hallucinations—saw cats and rabbits. Thought some of the women patients were men, thought she had to walk on cats' heads when she left her bed and that the physicians were watching her from the register plate in her room. Later she complained that she was "spirited away every night by some influence."

In the *treatment* of these cases the principal thing is the removal of the drug, though often the underlying condition, for

which the drug was taken—pain, insomnia—must then be treated. The most approved and efficient treatment of bromide intoxication is by the exhibition of sodium chloride which may be given intravenously in physiologic solution. WILE[16] recommends an initial dose of 100 to 150 c.c. which may be increased, if well tolerated, to from 300 to 400 c.c. twice weekly. It must be borne in mind that it may take several weeks for the patient to clear up after all drugs are discontinued.

[16] Wile, Udo J.: Bromide Intoxication. Jour. A. M. A., July 30, 1927.

CHAPTER XV.

Psychoses Associated with Organic Diseases and Injury of the Brain.

Epilepsy.—The word epilepsy does not stand for any one well defined somatic disease, but includes a series of end results, conditioned by a multiplicity of pathological conditions of the brain. It is really more proper to avoid its use altogether unless it is limited to a special group of cases (*i. e.*, the cases with disease of Ammon's horn as suggested by Alzheimer) and speak of *the epilepsies.*

Convulsions may occur in a great variety of conditions, *i.e.*, the functional psychoneuroses (hysteria), toxemias (alcohol, uremia), organic brain disease (tumor, softenings, paresis), defects of cerebral development (idiocy). Those occurring late in life are generally dependent upon some organic changes, such as cerebral arteriosclerosis or upon toxemias and are for convenience often spoken of as *late epilepsies* in distinction from those epilepsies which occur in early life and which are correspondingly known as *early epilepsies.*

Wilson[1] in an article on "Epileptic Variants" considers the clinical phenomena of the epilepsies from the point of view of escapes from physiological inhibitions which may be exteriorized in the form of motor, sensory, psychic, or visceral variants. He recognizes

I. Motor Variants:

1. Myoclonic or regional epilepsy.
2. Epilepsia partialis continua.
3. Tonic epilepsy.
4. Coördinated epilepsy.
5. Inhibitory or akinetic epilepsy.

[1] Wilson, S. A. Kinnier: The Journal of Neurology and Psychopathology, Jan., 1928.

II. Sensory Variants:
    1. Reflex epilepsy.
    2. Sensory epilepsy.
    3. Affective epilepsy.
III. Psychical Variants.
IV. Visceral Variants.

The form of epilepsy dealt with here is that form ordinarily known as *idiopathic* or *essential epilepsy, i.e.,* epilepsy which is not, apparently at least, symptomatic of some other condition. The mental disturbances associated with and due to epilepsy may be considered as divided into the *paroxysmal* and the *interparoxysmal.*

Paroxysmal.—The most characteristic and almost invariable mental disturbance due to epilepsy is the *unconsciousness* associated with the convulsion. This may be very transitory or may pass into a deep stupor of some hours' duration.

In a great many epileptics there is a marked disturbance preceding the convulsion, sometimes of several days' duration, and those who are accustomed to the patient can tell that a fit is impending. This change manifests itself in increased irritability, complaining, sometimes by depression or dullness, and there may be associated disturbances of the sensorium, hypochondriacal complaints and hallucinations. All these conditions are commonly promptly relieved by the fit.

Immediately after the convulsion there is often a temporary condition of confusion. The patient rises clumsily, looks about him in a bewildered manner and often does some semi-automatic acts, such as taking off his clothes.

Just before or more commonly after the convulsion a condition of active excitement may occur which may reach the stage of frenzy. In this state the patient is a veritable wild man—*epileptic furor.* He is liable to kill anyone who approaches or even himself. Fortunately his efforts are diffuse and not coherently directed. During this attack, which is usually brief, he has to be restrained and at the end is quite completely exhausted.

An attack of mental disturbance may take the place of the confusion and thus become an *epileptic equivalent.* These attacks of *psychic epilepsy* frequently take the form of so-called *epileptic automatism* or *epileptic dream states.* In this condition the patient

may do almost anything and when he comes to himself he has absolutely no recollection of what has happened. Usually the attacks are of short duration and the acts rather simple—more simple than in the dream states of alcohol or hysteria. However,

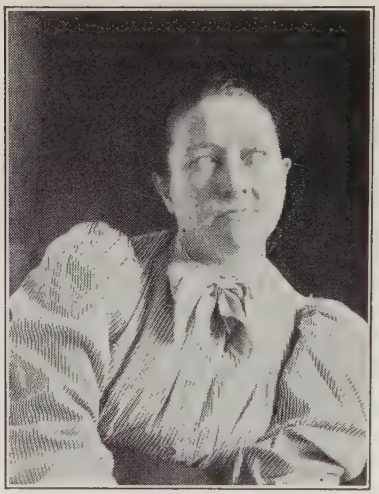


FIGURE 17. Photograph of a thirty year old epileptic woman during a post-convulsive state of ecstasy with a strong religious coloring.

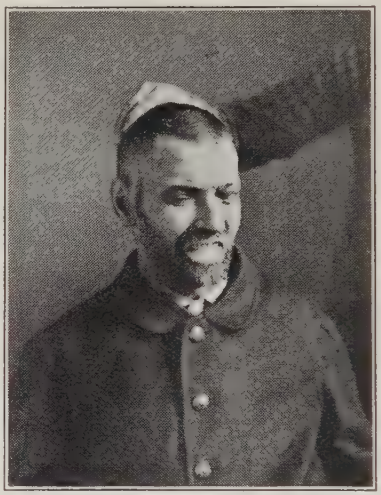


FIGURE 18. Photograph of an epileptic during the post-convulsive state of confusion. These states were characterized by destructive excitements during which he demonstrated vicious sadistic inclinations.

they may last for days, all sorts of things may be done, crimes may even be committed, so that the condition often becomes of great medico-legal importance. The crimes of violence are often noted for their ferocity and brutality.

It must not be forgotten that these states may be associated with a seizure that was so slight as not to have been noticed. Evidences of such a seizure, especially in medico-legal cases, should always be looked for.

Transitory conditions of *depression, excitement, confusion* and *stupor* may develop and quite characteristically a condition of *ecstasy* with hallucinations. The patient sees the gates of heaven open and as the heavenly hosts appear he hears himself addressed by the voice of God.

Interparoxysmal.—The interparoxysmal condition constitutes in the main the *epileptic character.* The epileptic is apt to be morose, irritable, suspicious and hypochondriacal. He is quite characteristically unreliable and with it all frequently presents a very aggressive form of sentimental, shallow religiosity. While we do find good-natured, even-tempered, well-disposed epileptics, they are more apt to be most difficult problems to get along with, and as a class in the hospital they are extremely difficult to care for. Passing attacks of mental disturbance occur in the interporoxysmal period without apparent relation to seizures. Attacks of *transitory ill-humor,* according to ASCHAFFENBERG, occur in 78 per cent of cases. This is a condition of irritability, unreasonableness, sometimes associated with delusions and hallucinations. The patient is in a noli me tangere state and very apt to get into quarrels or make attacks. Rarely the disturbance is expansive in type and in these cases may be associated with religious fervor.

A study of the sexual characteristics of epileptics has recently been made by MAEDER.[1a] As a result, he finds that sexuality of the epileptic still largely undeveloped, still only little removed from the infantile stage. The sexual feelings are very prominent and are aroused in many ways: autogenically, constituting *autoerotism,* and giving rise to such phenomena as masturbation, and by stimuli from without, constituting *alloerotism,* which gives rise to a normal libido (heterosexuality), homosexuality, exhibitionism, etc. MAEDER uses the term *polyvalent* to describe this characteristic of the epileptic sexuality which permits it to be aroused by many kinds of excitants.

Bodily Types.—KREYENBERG[1b] in a study of some 700 cases, 500 men and 200 women, concludes that epilepsy, whether genuine or symptomatic, shows an obvious affinity for the dysplastic and athletic-dysplastic types. There is a scarcity of leptosomes and leptosome-athletics and an almost complete absence of pyknics.

KRETSCHMER in his psychobiogram sets forth the distinguishing features of the epileptic character as follows—clinging, awkward, mawkishly sentimental, bigoted, circumstantial, pedantic, ego-

[1a] Maeder: Sexualität und Epilepsie. Jahrb. f. psychoanalytische u. psychopathologische Forschungen, 1909.

[1b] Kreyenberg, Gerhard: Physique, Epilepsy und Character. Zeitschrift für die gesamte Neurologie und Psychiatrie, Vol. 112, Nos. 3 and 4, pp. 507–548, Feb., 1928.

centric, and in contrast describes the epileptoid character as coarse, brutal, tense, explosive, abrupt, inclined to affective crises, to alcoholic excesses, to alcoholic intolerance, to pathological confused conditions, to reactive fugues.

Patients in his group of male epileptics, with so-called epileptoid trend and coarse, brutal, explosive traits, showed a manifest affinity for the athletic type: the beginning of the attacks is later and the process of mental deterioration more prolonged than in his other group. This group is also distinguished by the presence of vasomotor and hysterical factors. His other group of males showed an affinity for the dysplastic group. The convulsions in 69 per cent of these cases began in early infancy and the tendency to mental deterioration was marked and vasomotor phenomena were less pronounced. In the group of epileptic women the results are similar. Here again he found that the dysplastic physique was associated with convulsions beginning in early infancy and with rapid deterioration, whereas the epileptoid epileptics did not deteriorate so rapidly: their convulsions began in later life and they showed a greater affinity for the athletic physique.

The epileptic state leads in a certain proportion of cases, if it has begun in early life, to conditions of feeble-mindedness, imbecility, and idiocy, or, depending upon the same causes, is associated with these conditions. Epilepsy tends, in many cases, to produce a general mental deterioration—*epileptic dementia*—which may become very profound.

The Seizure.—There are many grades of severity of the attack running all the way from the severe grand mal seizure to slight disturbance without loss of consciousness. There are probably a continuous series of convulsive phenomena from light to severe.

The lightest form of convulsive seizure is represented by the hysterical attack, psychogenic in origin, consciousness not profoundly disturbed. Next in grade of severity but still within strictly psychological levels are the psychasthenic convulsions of Oppenheim (compulsion neurosis type). Then come the epilepsies of Bratz and Leubuscher which are situation reactions (prison psychosis) and while still psychological indicate a more seriously burdened personality. Following these come the confessedly epileptic types.

As this series indicates the psychological components have been much emphasized of late.

The Nature of the Disease.—Essential epilepsy is an expression of profound biological deficiency always evident in the reactions at the psychological level and frequently being associated with marked developmental anomalies of structure. It can never be adequately explained as due to some disorder of metabolism, endocrine imbalance or deficiency, or reflex irritation. It is a *total life reaction* and can only be understood in terms of the complete picture of the patient's development expressed in terms of his reactions. At the psychological level the conflict is of such a profound and essentially malignant type as to necessitate the complete avoidance reaction of unconsciousness.

The Fit.—In terms of energy discharge the fit is a manifestation of energy at greatly reduced adaptive efficiency.

From the psychological point of view, the attack, inasmuch as unconsciousness is its most common symptom, may be considered as a *flight into unconsciousness* which occurs at times of stress such as an emotional crisis, or developmental crisis, such as puberty, which calls for all manner of new adjustments, physiological, psychological, and social. The fit, therefore, is a break in the life demand for adaptation or an attempt at escape from an intolerable stimulus whether from within (toxin, tumor) or from without (life situation).

The phenomena of the fit at the immediately following period show it to be a profound regression to infantile levels. It might be likened to the *period of wish-fulfilment by means of incoördinate movements* (Ferenczi). In coming out of the attack the respiration is distinctly abdominal, sucking movements are quite characteristic, urine is frequently passed, and sometimes the patient expresses himself in baby talk, all testifying to the infantile setting of the attack in terms of function.

It is because each attack is a concession to the cruder self and enriches the egotistic interests that the disease is progressive in character and tends towards dementia in the sense of a degradation of interests and capacities for adequate social contacts.

Recently Rosett has offered an hypothesis to account for the convulsion, particularly its physiological mechanism, on the basis of its analogy to decerebrate rigidity.[1c] The convulsion, with its

[1c] Rosett, Joshua: The Mechanism and the Fundamental Cause of the Epilepsies. Arch. of Neurol. and Psychiatry, Vol. 9, June, 1923.

emphasis on the tonic contraction of the voluntary musculature, with a certain predominance of contraction of the extensors, adductors, and pronators, gives the picture of decerebrate rigidity, so that considered from this point of view it would be an attack of functional decerebration.

The real significance of this hypothesis is seen more clearly from his discussion of this type of rigidity as under certain circumstances a perfectly normal type of reaction. Rigidity of the decerebrate type occurs normally under two sets of circumstances: first, as a result of an outside stimulus of great intensity which completely focuses the attention with a resulting great constriction of the field of consciousness. Pain and fear are such stimuli which immediately throw the individual into a state of generalized tonic contracture. The significance of this contractual state is that the muscles are all tensed or set, as it were, for maximum movement in any direction, so that the individual is in a position of maximum advantage to undertake with the greatest rapidity movements of offense or defense. Second, this state of rigidity is produced as the result of certain physiological functions, such as sleep, defecation, sneezing, coughing, and parturition. In these states the purpose of the muscular contraction is to fix the points of muscular attachment so that the function that is in progress, say parturition, can be adequately performed. It will be noted, too, that in such states there is also a pin-point contraction of the field of consciousness limited to the actual essentials of the performance of the function in hand.

The signification of the reduction of consciousness is that it is the outward symptom of the functional decerebration; in other words, that it indicates that the functions of the higher centers have been removed from their control of the lower centers, and that when this happens the lower centers act uncontrolled and the state of tonus results. The fit, then, from this point of view, would be divided as follows: First, a stage of disintegration of the conscious state, which may be long or short, and which includes the aura, and when prolonged the pre-convulsive mental disturbances. Second, the stage of tonic rigidity, which is considered as an attack of functional decerebration. Third, the clonic movements, which are explained as redistributions of muscular tonus. And fourth, the stage of recovery, which includes the post-convulsive mental disturbances.

This theory is quite consistent with the psychological theory outlined above, and as the psychological theory involves a progressive uncovering of older and more archaic methods of reaction as regression takes place during the attack, so this theory, at the physiological level, likewise involves a progressive uncovering of older and more archaic action pattern systems as functional decerebration progresses.

Diagnosis.—It must be recalled that epilepsy is no longer considered as a disease but that the term as used covers a group of conditions which differ widely from one another. The above descriptions were intended to apply only to genuine, or what used to be called idiopathic, epilepsy.

In addition to genuine epilepsy, which usually begins early in life—*early epilepsy*—various *late epilepsies* have been described. The principal of these are the *toxic* (alcohol, lead), the *arteriosclerotic* (post-hemiplegic), the *syphilitic* and the *traumatic.* Many epileptiform attacks are very similar to genuine epilepsy, such, for example, as uremic convulsions, paretic seizures and sometimes hysteria, while the various functional conditions, particularly hysteria (sometimes psychasthenia), should be borne in mind.

Never forget the possibility of exclusively nocturnal attacks—*nocturnal epilepsy.* Always be suspicious of the patient who awakes tired and lame as if his muscles had been beaten, particularly if he shows conjunctival ecchymoses, a wounded tongue, and flecks of blood on the pillow. A localized muscular weakness that passed off promptly would add certainty to the diagnosis.

Scripture and Clark[2] have described the *epileptic voice sign* and found it in 75 per cent of cases. The voice has been studied by the "air puff" method of recording on the kymograph. A measure of the waves gives the rates of vibration. A line connecting the tops of the ordinates produces the "melody plot." Normally each vowel has a rising and falling melody. In epilepsy the vowels run along on an even tone—"*plateau speech.*" This is very characteristic and easily recognized.

Pathology.—The following groups of epilepsy are given by

2 Scripture and Clark: Researches on the Epileptic Voice. Proc. N. Y. Neurol. Soc., Nov. 12, 1907.

ALZHEIMER[3] as a result of the histological examination of 63 cases:

A. Cases with very obscure etiology (genuine epilepsy).
   1. This group comprises 60 per cent of the cases.
      a. with sclerotic changes in Ammon's horn.
      b. with superficial gliosis of the hemispheres.
      c. with signs of an acute process (status) besides *a* and *b*.
   2. This group comprises 4 per cent of the cases. A process that can be called *atrophic sclerosis;* considerable atrophy of different regions; no important changes in the vessels; deep impairment of the nervous structures, especially the third cell layer of the cortex.

B. Cases due to external poisons.
   1. Alcohol: Different anatomical changes as in chronic alcoholism. Besides these sometimes acute changes as in delirium.
   2. Lead: Different changes. Experimentally lead produces a genuine encephalitis.

C. General diseases.
   1. Syphilis: Different forms of brain syphilis. Especially the endarteritis of the finer vessels (NISSL, ALZHEIMER).
   2. Arteriosclerosis.

D. Focal diseases: Most of the cases in this group are cases of epilepsy with idiocy after encephalitis.

E. Arrests of development:
   1. Stadium verrucosum (RANCKE)—microgyria.
   2. Sclerosis tuberosa.

More recently SPIELMEYER,[3a] in an extensive study of the histopathology of epilepsy, has confirmed the frequency with which changes are found in Ammon's horn and adds the cerebellum to the characteristically involved portions of the brain. He believes as the result of observation and experiment that the seizure begins with an angiospasm and resulting ischemia in certain vascular

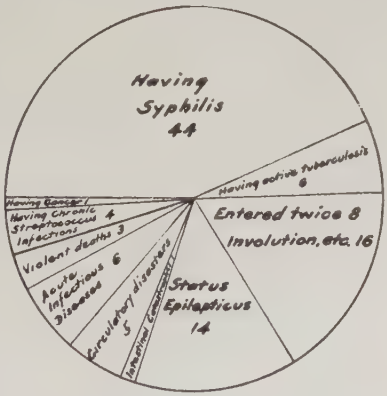
[3] Alzheimer und Vogt: Die Gruppierung der Epilepsie. Jahresversammlung des deutschen Vereins für Psychiatrie, 1907; Ref. Allg. Ztschr. f. Psych., Bd. 64, 1907.

[3a] Spielmeyer, W.: Die Pathogenese des epileptischen Krampfes. Ztschr. f. d. ges. Neurol. u. Psychiat., Vol. 109, Nos. 4 and 5, 1927, p. 501.

territories and the pathology shows that the changes in these territories are consistent with this theory, both as to the distribution of the lesions in a vascular area and as to the character of the cell changes being those that might be expected to result from repeated or severe ischemia.

Extraneural Pathology.—Based on 215 autopsies LEWIS[3b] divides the epilepsies into (1) those with a large, hypertrophied or diseased vascular system, a group composed mainly of "organic" types (vascular—abscesses, tumors, etc.), and (2) those with hypoplastic circulatory features which may or may not be associated with status thymolymphaticus constitution, a group made up chiefly of the "idiopathic" regressive varieties and those with additional schizophrenic developments. In this second or hypoplastic group there were three sub-groups; namely, (a) *the pancreatic insular and acinal sclerosis group,* with or without persistent thymus, where connective tissue changes were advanced at the expense of the parenchymatous structures, regardless of the age or of the type of lethal lesions; (b) *the anterior pituitary sclerosis group,* where the main chronic histopathologic change is in the anterior lobe of the pituitary; and (c) the *pituitary adreno-gonadal* group, with notable changes in all three of these glands in the form of various degrees of sclerotic atrophy and compensatory hypertrophy.

The accompanying figure shows the result of autopsies by FREEMAN of cases[3c] with epileptoid type of reaction.



Disease incidence and cause of death in epileptoid group. Male and female. 101 cases.

The death rate of patients dying in institutions for epileptics per 1,000 under treatment in these institutions during the year 1922 was, according to the U. S. Census Reports, for males

[3b] Lewis, N. D. C.: A Discussion of the Relationship of the Chemical, Physical, and Psychologic Aspects of the Personality. The Psychoanalytic Review, Vol. XI, No. 4, October, 1924.

[3c] Saint Elizabeths Hospital material.

62.6, for females 50.6, and for both sexes combined 57.3. The higher rate is found in the symptomatic group, the rate for the males in this group being 103.1 and for the females 65.7 per 1,000 under treatment; in the idiopathic group the rate for the males was 55.9 and the females 49.3. Probably the reason for the higher rate among the symptomatic group is due to the fact that this group contains many serious head injuries, brain infections, and brain tumors that are of themselves essentially fatal.

The ages of patients dying in institutions for epileptics, according to the U. S. Census, shows very little variation in the distribution between the two sexes, except in the group from twenty to twenty-four years, where the percentage of females dying is much lower than of the males. With this exception there is a fairly uniform number of deaths in each quinquennial group up to fifty-five years or over. The median age group for each sex is thirty-five to thirty-nine years. This comparatively low age at death supports the belief that epilepsy greatly shortens life.

Treatment.—The treatment is the treatment of epilepsy. When dangerous tendencies are associated with the attacks the patient should be confined in an appropriate institution.

Tumor.—Mental symptoms are more apt to occur when the tumor is located in the prefrontal region. They are change of character, irritability, childishness, emotional instability, with a tendency to hebetude and some clouding of consciousness. Hallucinations may develop as the result of the invasion by the growth of sensory areas. Tumors, especially of the frontal region, are sometimes associated with a jovial, happy frame of mind and a tendency to joke and make fun. This symptom has been given the name *Witselsucht* by the Germans.*

Diagnosis.—The diagnosis is made from the presence of the classical symptoms of tumor and a study of the localizing signs. The disease most apt to be confounded with tumor is paresis. Cases are seen on the one hand to present quite clear local symptoms and subsequently turn out to be paresis; while on the other hand cases are seen without clear local symptoms and which appear to be paresis but which turn out to be tumor.

Syphilis.—An acute delirium may develop during the early secondary manifestations of the disease. Later marked manifestations may be connected with local or general disease of the brain.

Gumma are rare and give the symptoms of tumor. The most common condition is a progressive disease of the cerebral vessels, often with thrombosis.

The mental symptoms are those of dementia, to which are added local symptoms as a result of thrombosis. The symptoms will of course vary according to the location of the softening.

PLAUT[4] in a suggestive study classifies the syphilitic psychoses as follows: (1) *Simple luetic weakness of mind*—generally accompanied by hemiplegia or monoplegia, which may be transitory or permanent. (2) *Syphilitic pseudo-paralysis*—the presence of hallucinations of hearing have great weight in the diagnosis of this form and speak against true paresis. (3) *Paranoid forms combined with tabes*—remaining stationary for long periods, little dementia, rarely delusions of persecution, numerous hallucinations of hearing, disturbances of common sensation. (4) *Paranoid forms without tabetic symptoms,* for example, with auditory hallucinations and delusions of jealousy. (5) *Certain epileptic forms,* due to endarteritic changes. (6) *Short hallucinatory confused states.* (7) *Psychotic disturbances associated with syphilitic cardiac disease,* observed also as a result of syphilitic aortitis. (8) *Psychoses resembling manic-depressive psychosis,* particularly manic excitement. (9) *Mental disorder,* due to syphilis as a *psychic trauma.* (10) Various grades of *weak-mindedness, psychopathic constitution,* etc.

Diagnosis.—Many of these cases are extremely difficult to differentiate from paresis. Vascular brain syphilis occurs a shorter period after luetic infection, the patient is younger, it is more marked by localizing symptoms, often is associated with severe headaches, which are usually worse at night, and the symptoms, with the exception of those due to destructive lesions, may yield to anti-syphilitic medication. A most careful neurological examination is of the first importance.

Pathology.—According to ALZHEIMER[5] syphilitic affections of the brain show the following anatomical forms:

[4] Plaut, F.: Die leutischen Geistesstörungen. Centralb. f. Nervenh. und Psych., XXXII.

[5] Alzheimer: Histologische Studien zur Differentialdiagnose der Progressive Paralyse. Histol. u. histopath. Arbeiten, Bd. I, 1904.

I. Isolated gummatous tumors.

II. Extensive meningitic infiltrations (meningo-encephalitis), with or without gummatous nodules.

(*a*) Of the base.

(*b*) Of the convexity.

Cases involving both base and convexity are rare.

III. Endocarditis luetica.

(*a*) Heubner's endarteritis.

(*b*) Nissl and Alzheimer's endarteritis of the smaller vessels.

Number II (meningo-encephalitis) is the most apt to be mistaken for paresis.

A spirochæta septicemia may also occur.

It must not be forgotten that parenchymatous and vascular changes may be found in the same brain.

Apoplexy.—The mental condition[6] following apoplexy is usually one of impairment which, if the lesion is considerable, progresses to marked dementia. If the softening involves the speech area, especially if it produce sensory aphasia, the dementia is much more rapid in progress, as it must be remembered that these patients are often senile. Epilepsy often develops as a result of a localized area of softening. These patients often express an exaggerated emotivity sometimes on being asked the simplest question.

The neurological signs of hemiplegia are present, also often the signs of senility and not infrequently of arteriosclerosis.

Traumatism.—The most frequent symptoms following trauma are those of hysteria and neurasthenia. Dementia precox, manic-depressive psychosis and paresis may follow an injury.

After the injury a delirium may develop. Aside from this, mental symptoms may not occur for a considerable time, and when they do they usually consist of an apathetic dementia, often with irritability. There are often memory defects, especially amnesia for the time of the injury, and these defects may be filled in with fabrications. There is almost always intolerance of alcohol.

[6] Ricksher, Charles: A Review of the Mental Symptoms Accompanying Apoplexy. Am. Jour. of Insanity, July, 1906.

MEYER[7] classifies the effects of traumatism in the nervous system as follows:

1. The direct focal and the more diffuse destruction of the nerve-tissue or of parts of it; and the reaction of the tissues.

(*a*) The immediate effects—edema.

(*b*) The scar formation.

2. The distinctly diffuse commotions in which the general reaction and the psychic elements preponderate, including the remote active results of exaggerations of vasomotor and emotional responsiveness.

He classifies the psychoses developing as follows:

1. *Post-traumatic* deliria, including febrile reactions, the *delirium nervosum* of Dupuytren, not differing from post-operative delirium, the delirium of the slow solution of coma in alcoholic as well as non-alcoholic subjects, protracted deliria with confabulation with or without alcoholic or senile basis.

2. *Post-traumatic Constitution.*—Excessive reaction to alcohol, la grippe, etc., the vasomotor neurosis of Friedman, the "explosive diathesis" of Kaplan, hysteroid or epileptoid episodes, with or without convulsions, paranoid states.

3. *Traumatic Defect Conditions.*—Conditions allied to aphasia, deterioration with epilepsy, deterioration due to the progressive alteration of the primarily injured parts, with or without arteriosclerosis.

4. *Psychoses in which trauma is merely a contributory factor.*—Paresis, manic-depressive, dementia precox.

5. *Traumatic psychoses from injury not directly affecting the head.*

To state the case simply there are certain transitory conditions of delirioid experiences following trauma which may leave a permanent constitutional change or not. Then there are certain very slowly progressive dementias which can only be appreciated by taking a longitudinal section of the patient's life. Thus it will be found that a life that has been efficient up to a certain point where it was punctuated by the trauma has fallen off in efficiency pro-

[7] Meyer, Adolf: The Anatomical Facts and Clinical Varieties of Traumatic Insanity. Am. Jour. Insanity, Jan., 1904.

gressively since. Then there are the endogenous psychoses for which the trauma may be only the exciting cause.[8]

Recently HADLEY[9] in a very painstaking review of the literature and analysis of cases concludes that there is no clinical entity which may properly be called a traumatic psychosis or neurosis. However, there has been found following severe injury to the brain an alteration in the personality, defense phenomena with the dependent condition of hyperirritability, which may be designated as *post-traumatic constitution.* In addition to this there is a *concussion syndrome* with or without febrile or delirioid reaction and characterized by a varying period of unconsciousness, clouding of the perceptual field and motor restlessness—the reaction to the various stimuli flooding the sensorium; and a *traumatic defect condition* dependent upon the location of the lesion, aphasias, paralyses, and secondary mental deterioration, with or without arteriosclerosis.

Various other pictures may be found, namely, Korsakow-like syndromes, hysteriform and epileptiform attacks, paranoid states, schizoid and cyclothymic-like reactions, but these can be adequately explained by *pretraumatic psychopathic traits.* In such cases the trauma is merely the precipitating factor, and the mental picture is dependent upon the character of the personality make-up involved. The explanation of the content here is the same as in paresis (p. 189).

This group of the traumatic psychoses includes also the *post-operative psychoses,* the psychoses following operations on the eye, *ophthalmic psychoses,* and *isolation psychoses.*

Encephalitis Lethargica.—KRAEPELIN, in years past, endeavered to discover whether there might not exist in the various toxemias and infections a specific type of reaction at the psychological level, whether, for example, there might not be a difference between the mental picture of the delirium of pneumonia and of typhoid fever. In spite of the fact that alcohol, on the one hand, particularly in the Korsakow syndrome, and syphilis, on the other hand, as paresis, did give a certain symptomatology which was

[8] Glueck: Traumatic Psychoses and Post-Traumatic Psychopathic States. Jour. Am. Med. Assn., April 1, 1911.

[9] Hadley, Ernest E.: The Mental Symptom Complex Following Cranial Trauma. Jour. Nerv. and Ment. Dis., Vol. 56, Nos. 5 and 6, November and December, 1922.

sufficiently characteristic to warrant the hypothesis of *psychological specificity,* still on the whole KRAEPELIN's efforts have been futile, and it has come to be believed that the symptomatological gamut of the disintegrating neuron was relatively short, that it was characterized more especially by delirium or delirioid reactions or confusion, and that it made no difference what the causative factor might be which tore down the structure of the neuron, the symptoms were the result of this disintegration of structure and not of the forces which produced it. From two directions there seem to come evidences that this position can no longer be satisfactorily maintained, and that perhaps KRAEPELIN's prevision will have to be recognized. In the first place, the generic type of symptom, such as delirium due to toxic or infectious factors, has been increased in number. There are now recognized not only delirium, delirioid reactions and confusions, but affect and mood disorders, schizoid reactions, convulsive reactions, Korsakow-like reactions, paranoid trends, and more recently HOCH and KIRBY[10] have described the symptom of *distressed perplexity.* In the second place the evidence concerns the symptomatology of lethargic encephalitis itself. There are indications that the qualitative specificity of the psychic symptoms is greater in this disease than for the general run of toxic and infectious states, and perhaps as great as for the analogous infectious-organic disease, paresis. This is particularly evidenced by the character of the psychological reactions as set forth by HOHMAN,[11] particularly by such reactions as (a) push of talk without distortion, (b) surprising alertness on arousal from stupor, and I would add the lethargy itself.

So much for the question of psychological specificity. As to the mental symptoms in general: TILNEY and RILEY[12] describe cataleptic, lethargic, epileptico-maniacal, and acute psychotic types, while HOHMAN[13] describes four reaction types, namely: 1. depressive, 2. psychoneurotic-like, 3. delirious, and 4. organic, and gives nine symptoms of frequent occurrence, namely: (a) push

10 Hoch, A., and Kirby, G. H.: A clinical study of psychoses characterized by distressed perplexity. Arch. Neurol. and Psychiatry, April, 1919.

11 Hohman, H. B.: Epidemic Encephalitis. Arch. Neurol. and Psychiat., September, 1921.

12 Epidemic Encephalitis. Neurol. Bulletin, 1919, Vol. 2.

13 *Loc. cit.*

of talk without distortion, (b) surprising alertness on arousal from stupor, (c) feeling of well-being and happiness, (d) behavior oddities out of keeping with general activity or mood, (e) emotional instability and irritability, (f) organic type of delirium at times accompanied by fear, (g) stupor states, (h) depression, frequently the dominant mood, and (i) characteristic memory defect. WOLFGANG[14] has recently called attention to a sequel that should not be lost sight of, namely, ethical defects manifested by lying, stealing, and cruelty which may be of the psychic compulsory sort or associated with akinesis or hyperkinesis. He thinks this condition more usually follows the nonlethargic form of encephalitis and recommends iodine therapy, especially if the ethical changes are less in the form of compulsions than of weakness resulting in irritability as a psychic correlate of hyperkinesis.

[14] Wolfgang, B.: Psychische Veränderungen bei Kindern im Gefolge von epidemischer Encephalitis. Archiv f. Psychiatrie, Vol. 69, 1923.

CHAPTER XVI.

The Symptomatic Psychoses.

In this group of symptomatic psychoses are included those mental disorders that are associated with and are symptomatic of various bodily diseases. Bonhoeffer[1] includes in this group the psychoses of the infections and of fever delirium and defervescence.

Auto-toxic Psychoses.

Uremia.—The auto-intoxication which develops as a result of renal disease produces mental symptoms of an acute confusion with changeable delusions, hallucinations, clouding of consciousness, restlessness, and often an occupation delirium. The character of the delusions may be more or less consistently grandiose, giving rise to an *expansive form,* or depressive, giving rise to the *depressive form.* In subacute cases a condition of suspicion, anxiety, with loosely systematized delusions of persecution, sometimes develop.

It must not be forgotten that in some cases of acute uremia distinctly focal symptoms develop. These cases associated with headache, vomiting, and dimness of vision, often closely resemble brain tumor.

The uremic convulsions cannot be distinguished in appearance from the epileptic and development afterwards of a dream state makes the resemblance closer still.

Here, as in all toxic conditions, the characteristic dream-like hallucinatory delirium, which has been called "cinematographic," is the characteristic mental symptom (for example see alcohol).

Diagnosis.—The diagnosis is to be made from the association of an acute confusion with the uremic state. The subacute cases may mislead as they have the outward semblance of a chronic psychosis. The history will, however, show an acute onset and the physical examination will disclose evidences of renal disease.

[1] Bonhoeffer: Die Symptomatischen Psychosen.

Diabetes.—The mental disorder associated with diabetes is usually of a mild chronic type. It is usually a depression, with melancholic ideas of sin, ruin and usually also hypochondriacal ideas, especially with reference to the excretion of sugar. There is liable to be marked somnolence with some confusion and disorientation in the semi-somnolent state. Persecutory delusions are quite frequently developed, ideas of poisoning and the like,

It must be remembered that diabetes produces arteriosclerosis, so that certain of the mental symptoms may depend upon the degenerative changes in the cerebral vessels.

Diagnosis.—The persecutory type must be differentiated from the chronic psychoses. Otherwise the diagnosis is made by the association of the mental symptoms with glycosuria. A diabetic pseudo-general paresis has been described.

Gastro-Intestinal.—Certain cases of acute confusion develop, associated with a profuse, offensive diarrhea, a high grade of indicanuria, vomiting, low fever and perhaps mild albuminuria. Some of these cases go on to acute delerium, with high fever, typhoid state, profound exhaustion, coma and death.

Thyrogenous Psychoses.

The thyrogenous psychoses may be divided into two classes: Those due to defect of secretions—myxœdema and cretinism—and those due to hypersecretion—exophthalmic goitre.

Myxoedema.—Associated with the physical symptoms of myxœdema is a mental state of stupidity, indifference and apathy, deepening into dementia. There is gradual failure of memory, lack of power of voluntary attention, slow association of ideas and difficulty of apprehension. Sometimes a moderate degree of confusion with excitement develops.

Cretinism.—Associated with the physical signs of cretinism is a mental state, due to lack of development, which may range all the way from the profound degradation of idiocy to mild grades of imbecility.

Exophthalmic Goitre.—The prevailing mental tone associated with this disease is fear and apprehension.

It is not infrequently associated with hallucinations of hearing and vision; voices may be heard saying disagreeable things.

With these hallucinations occur anxious and agitated states. The prognosis in these cases is bad. Many of them die.

Severe cases of *acute thyroidism* with active delirium are occasionally seen following operations upon the gland and may be due to the expression of its secretions by handling it and subsequent absorption.

Nervous Diseases.

Sydenham's Chorea.—Patients with chorea are usually impatient, irritable, fretful and emotionally unstable. Some of the cases develop terrifying dreams and hallucinations, especially at night. Marked psychotic symptoms develop in the variety of the disease known as *chorea insaniens,* an acute confusion, sometimes of violent type, develops with hallucinations and often a paranoid condition with delusions of persecution. Sometimes a condition of stupor is observed.

Korsakow's psychosis is sometimes seen as a result of polyneuritis from overtreatment with arsenic.

Diagnosis.—The diagnosis is made by the association of the mental symptoms with the characteristic choreic movements.

Huntington's Chorea.—This disease is associated on the psychical side with gradual mental impairment.

Paralysis Agitans.—This disease is often associated with a mild degree of mental enfeeblement.

Multiple Sclerosis.—The mental condition is usually one of slight impairment, especially with emotional instability. The patient laughs and cries very easily.

Diagnosis.—The disease must be differentiated from paresis which it often closely resembles.

Polyneuritis.—See Korsakow's Psychosis, Chapter XIV.

Pellagra.—There has been some study of the mental symptoms of pellagra of late years. From the few cases I have seen and from talking with those who have had it under observation there seems to be a variety of symptom pictures.

Many cases present no nervous or mental symptoms at all. In those who do there seems to be a tendency toward a variable localization of the disease process. There seem to be cases in which the spinal cord suffers most and others in which the brain suffers most. In this latter group a condition of very *acute*

delirium may be developed running a rapid course to fatal termination and reminding one of the acute forms of paresis. The more frequent condition, of which I have seen a number of cases, seems to be more in the nature of a *simple retardation.* The patient moves slowly or not at all, and answers questions after a long delay in a low tone of voice and in monosyllables. There does not go with this retardation however an emotional depression as in melancholia. I have also seen *pellagraphobia* in an infected territory.

With this disease, as with many others, we must not forget that it may be associated with various psychoses without having any other relation to them. This is particularly so in this country as the large groups of cases which have occurred have been in hospitals for the insane.

Perhaps Gregor[2] has made the most careful clinical study of the mental symptoms. He considers his cases under the following seven categories: (1) Pellagrous neurasthenia, (2) stuporous group, (3) mental aberration, (4) acute delirium, (5) katatonia, (6) anxiety psychosis, (7) manic-depressive group. It does not seem clear however just what is the connection in all of these cases between the pellagra and the psychosis.

Heart Disease.—Depressive states are most in evidence here. Mental symptoms, however, are most apt to be associated with failure of compensation. With precordial distress goes typically a mental state of anxiousness. Transitory confusions with dreamy hallucinations occur with compensation disturbances and edema.

Treatment.—The treatment of all these conditions is the treatment of the underlying disease.

Diseases Other than Nervous.

Various other diseases have from time to time mental symptoms associated with them. The great majority of such diseases, if not all of them, have elements of infection or toxemia and exhaustion combined with or part of them. We therefore see the mental symptom-complex of confusion arise most typically. In some cases, especially the less acute, paranoid conditions occur and hal-

[2] Gregor, O.: Beiträge zur Kenntnis der pellagrösen Geistesstörungen. Jahrb. f. Psychiat. u. Neurol., 1907.

lucinoses are of occasional occurrence. The most important disease in this group is influenza.

Influenza.—Influenza acts both to cause and to modify psychoses. MENNINGER[3] has shown that it acts in three ways, to create psychoses, to precipitate psychoses in predisposed individuals, and to augment or alter their form when already existing. He gives the following examples of these three ways of acting. It may cause: delirium (simple, errant, schizophrenic), apoplexy, atypical psychoses, senile psychoses, schizophrenia, cyclothymia, hysteria. It may precipitate: delirium tremens, schizophrenia, cyclothymia, psychoneurosis. It may alter: defectiveness, epilepsy, psychopathy, apparent normality, neurosyphilis. In this last group he cites the case of a moron whose mental level was reduced by influenza to that of imbecility; and the case of a person apparently normal (latent syphilis) who developed paresis following influenza.

HEAD has shown that certain visceral diseases, especially of cardiovascular and pulmonary origin, often have associated mental symptoms although they may not appear except on the most careful examination. The symptoms found are: (1) Hallucinations of vision, hearing and smell; (2) moods, either of depression or exaltation, and (3) suspicions usually occurring when a depression has persisted for some time.

These conditions take their origin as a result of reflected visceral pains. Each spinal segment has both a visceral and a cutaneous representation. Disease occurring in the visceral area is referred to the cutaneous surface supplied by the same segment. The cutaneous distribution of the fifth nerve corresponds to the visceral distribution of the vagus, so pain occurring in the vagus territory will be referred to the scalp and thus occur points of tenderness in this region with which the hallucinations are associated. The mood of exaltation is essentially transitory and arises as a contrast phenomenon of the depression and as a result of the disappearance or lessening of the reflected somatic pain.

[3] Menninger, Karl A.: Psychoses Associated with Influenza. Arch. Neurol. and Psychiat., 1919, Vol. 2.

CHAPTER XVII.

Borderland and Episodic States.

The Psychoneuroses.

Neurasthenia.—*Symptoms:* The manifestations of neurasthenia are protean and numerous. The disease may be on a hereditary basis, constituting so-called *constitutional* neurasthenia, or it may be *acquired* by exhausting and debilitating conditions, usually acting over a considerable period. Symptoms of hysteria are not infrequently combined with those of neurasthenia, constituting *hysteroneurasthenia.* Neurasthenia is usually classified in accordance with the organs about which the symptoms most prominently group themselves into *cerebral, spinal, genital, gastric, angiopathic,* or in accordance with the cause as *lithæmic* and *traumatic.*

The fundamental symptom of neurasthenia is *fatigability,* both mental and physical. With this fatigability there goes a condition of irritability—*irritable weakness*—and inability to concentrate the attention for any length of time. This attention disorder is often responsible for what appear to be amnesias. As a matter of fact little or no attention was paid to the event supposed to have been forgotten so that it never was adequately impressed in the first place.

The mood is pessimistic, often hypochondriacal. The simple depression that goes with this state is often of the nature of a symptomatic depression. The hypochondriacal ideas referable to the particular viscera are to no small extent fostered by the treatment, in many cases, which centers the patient's attention upon his various bodily functions.

To the condition of those patients who pay marked and more or less continuous attention to the functions of their body organs the name *hypochondria* is given.

Causes.—The cause of neurasthenia is usually put down as overstrain, mental or physical. The so-called strenuous life of the present day is believed to be responsible for many cases. The strenuous life, however, has offered material for criticism for

hundreds of years. Cicero wrote against it in the old Roman days. What, to my mind is more characteristic of the times, not in opposition to all other times, but in distinction from the period of the immediate past is idleness, especially of the women. The women of the well-to-do classes have literally nothing to do. Immense corporations make and provide, not only all the necessities but all the luxuries. Servants do all the manual work and there is nothing left for her. She is therefore constrained to lead a life of comparative uselessness and idleness. It is a life, however, that does not satisfy. In addition to its uselessness it becomes a life of longing for something usually indefinable, a life of shattered hopes, of ambitious longings that don't come true, of unfulfillment. Having no outer interests the thoughts naturally turn to self and in this factor is laid the foundation of the hypochondria that these patients suffer from, the eternal complaining of little nothings. Having lost their touch with reality and become self-centered their own ego occupies a too prominent place in their perspective. Their world is a world in which they occupy the central point, everything has some relation to them, they become suspicious, carping critics, gossips and scandal mongers. To try and escape from this inner suffering they often engage in a delirious round of social functions and break down apparently from overexertion in keeping up their social duties. This is, however, only the obvious cause; the real cause lies much deeper. Being somewhat physically tried, having failed, having no real interest, they are indifferent to all except their personal sufferings. Exertion is only exertion and serves no special ends, fits in nowhere as a link in a well-connected, coherent chain of events, so they end by being unable to exert themselves at all. Even getting up and dressing is too much; they stay in bed.

This is the usual picture of neurasthenia which of course may be varied in innumerable details. The important thing to get from the illustration is the importance of the mental factor which may be described as an introversion to the narcissistic level.

Diagnosis.—The early stages of paresis and arteriosclerosis not infrequently present neurasthenic symptoms. An examination of the physical signs, particularly the tendon and pupillary reflexes, will usually clear up the difficulty. If any doubt remains an examination of the cerebrospinal fluid will settle it.

The prodromes of dementia precox may be extremely difficult to differentiate. The emotional indifference of precox is in marked contrast to the emotional state of neurasthenia.

The mild depressions of manic-depressive psychosis may resemble neurasthenia. A demonstration of retardation will be about the only way to differentiate some of these cases except by the lapse of time and a study of the course.

It must be remembered that many conditions, both mental and physical, may have neurasthenic symptoms associated. This is especially important to recall of brain tumor, the persistent headache of which has been mistaken for a neurasthenic headache.

Treatment.—In the main the treatment should be tonic and restorative. The Weir Mitchell rest cure is effective in many of these cases and accomplishes its results quite as much, in many cases, because of the effect on the mind of the patient as because of the result in improvement of bodily health. This group of cases are especially favorable for a rational psychotherapy.

In the class of cases I have described the real problem is to get them out of themselves and into healthy touch with the world of reality. This can only be done by awakening new interests and training them gradually in healthy viewpoints, and a continuity of effort, in endeavoring to establish the habit of work. The rational approach to these problems is via the psychoanalytic method. This is an easy thing to say but one of the most difficult of therapeutic problems.

The normal individual does not know, from his sensations at least, that he has a heart, a stomach, or nerves. A form of treatment that centers the patient's attention upon his bodily functions may therefore do harm. It is a commonplace that if the attention is directed to any part of the body, sensations will soon begin to flow from that part. Very carefully devised dietaries carried out with great precision as to detail may, therefore, do much to fix the patient's hypochondriacal ideas with reference to his digestive organs. Similarly with other organs.

Conversion Hysteria.—The nature of hysterical manifestations has been a matter for discussion and theorizing for centuries. About the only ground upon which all can meet to-day is that the manifestations are mental in origin although some still maintain the possibility of isolated symptoms not susceptible of

this explanation. BABINSKI[1] has laid down the dictum that no symptom can be hysterical which cannot be produced by suggestion and removed by persuasion. To the condition in this group of cases in which the symptoms are capable of being produced by suggestion and removed by persuasion BABINSKI has given the name *pithiatism*.

Among the most important theories[2] of hysteria is that of SOLLIER[3] who regards it as the result of the going to sleep more or less locally or generally of the cerebral centers. The hysteric is a vigilambulist.

JANET[4] says that hysteria is "a form of mental depression characterized by the retraction of the field of personal consciousness and by the tendency to the dissociation and the emancipation of systems of ideas and of functions which by their synthesis constitute the personality."

His theory perhaps comes as close as any to throwing real light on the situation. From the standpoint of the nature of hysteria his theory is enlightening as tending to show that the fundamental trouble is a loose organization, a faulty synthesis of the personality. SNYDER[5] and HELLPACH[6] have particularly laid stress upon this. Hysteria is a disorder, a type of reaction belonging to people who in mental organization are still children. People in whom the elements that go to make up the personality are still only loosely bound together, they are in the adjustable stage of development.

The most important theory of hysteria to-day is that of FREUD.[7] He regards hysteria as due to the operation of buried sexual complexes. The symptoms that result are due to the *conversion* of the affect of the complex into physical symptoms (see Chap. VII).

Conversion is the essential feature of the symptomatology of

1 Babinski: My Conception of Hysteria and Hypnotism. Alienist and Neurologist, Vol. XXIX, Feb., 1908.

2 White: Mental Mechanisms. No. 8 of this series.

3 Sollier: Hystérie et Sommeil. Arch. d. Neurol., Mai et Juin, 1907.

4 Janet: Les Névroses. Paris, 1909.

5 Snyder: Definition et nature de l'hystérie. L'Encéphale Aout, 1907.

6 Hellpach: Cited by Jelliffe: Hysteria and the Reëducation Method of Dubois. N. Y. Med. Jour., May 16, 1908.

7 Freud: Selected Papers on Hysteria and other Psychoneuroses. Nerv. and Ment. Dis. Monog. Series, No. 4, New York, 1909.

hysteria according to FREUD while the essential feature of his theory of the origin of the painful complex is that it is due to a psychic conflict of a sexual nature, a conflict between desire as represented by buried complexes and attitudes of mind the results of education.

We find, therefore, according to this author an infantile sexual complex which has been repressed. In certain individuals this repression results in an independent activity of the repressed complexes. These repressed complexes condition erotic fancies which take forms incompatible with the personality and are in turn repressed. The repressed ideas are rendered harmless, greatly weakened, by the transformation of their affective excitement into bodily innervation—a process FREUD calls "conversion" while the mental symptoms of the attack represent incursions of the erotic day dreams to the surface. Thus in FREUD'S words: "Psychoanalysis of hysterical individuals shows that the malady is the result of the conflict between the libido and the sexual repression, and that their symptoms have the value of a compromise between both psychic streams."

The mental symptoms of hysteria for practical purposes have for a long time been divided into those constant phenomena which are present throughout the course of the malady—the symptoms of the *interparoxysmal period,* the so-called *mental stigmata,* and those more or less closely connected with the paroxysms—the *episodic phenomena.*

Mental Stigmata.—The principal symptoms of the interparoxysmal period are: *Anesthesias*—disseminated, segmental, hemianesthesia, *hyperesthesias* usually disseminated. *Motor disturbances*—contractions, catalepsy, paralysis. *Amnesias*—partial or general. *Debility of the emotions—loss of will power, suggestibility.*

It must be fully understood that all these symptoms, even the sensory and motor disturbances, are purely mental.

Episodic Phenomena.—These phenomena may precede or follow an hysterical crisis, or, as in epilepsy, may be substituted for one. They are principally states of *exaltation, depression, delusions, lethargy, somnambulism, fixed ideas, delirium, choreiform movements.*

Conditions of *delirium* with great confusion, clouding of consciousness and hallucinations are common.

Dream states are also quite characteristic of this disease, as they are of epilepsy and alcoholism.

A characteristic of these episodic manifestations is their very frequent association with amnesia.[8]

It will be found that the crises of hysteria are associated with certain unconscious ideas, that are connected with some previous experience, having a large content of painful emotion, which has been forgotten.

In fact the psychology of hysteria is the psychology of these unconscious states and their method of growth by a process of dissociation, or splitting of the normal consciousness. Following these periods of unconscious activity the patient may have absolutely no recollection of what has occurred, so that the phenomena have often been looked upon as disturbances of memory.

While in the normal individual, however, memories lapse by a process of gradual subsidence in the face of the intensive present, in these other conditions the events cannot be said to lapse in this way as they no longer are in direct connection with the personal consciousness. In these instances a dissociation has taken place, there has been a fault, a line of cleavage which separates them much more completely.

This cleavage with the resulting dissociation is an abnormal phenomenon and the manifestations which follow result from a split-off state in the unconscious which tends always to become dynamic.

This condition of dissociation may have its origin in a severe emotional shock, or be the reaction of a badly knit personality to the ordinary demands of reality. It occurs more particularly in young people, being more readily brought about in that condition of lability incident to development and as at this time the sexual preëmpts a very prominent place in mental life the resulting picture is correspondingly colored.

The dissociation in its beginning may be of any extent. A certain portion of the then consciousness of the individual at the time of the accident is separated by a plane of cleavage from his subsequent mental existence and in relation to that mental existence is said to be unconscious.

[8] Sidis and White: Mental Dissociation in Functional Psychosis in Sidis: Psychopathological Researches, New York, 1902.

The process of dissociation, having once begun, tends to continue and new material is constantly being added to this secondary state by further cleavage and also by assimilation by this state itself as it begins to lead an independent existence. Thus the tendency is for it to grow continually, and when that growth takes place by repeated cleavage, to grow at the expense of the personal consciousness.

This is the process of dissociation but associated with it is the dynamogenic quality of the dissociated states spoken of above and which is responsible largely for the manifestations that have attracted attention. How can this factor be explained?

In the normally functioning mind there is constantly going on a "battle of motives," a struggle for supremacy between the several elements, much like the struggle described as between the physical elements of the body which results in certain structural types. The result of this is that differences of tension tend to occur in different areas, but as these areas are all organically connected, discharge taking place along the lines of least resistance drains those at high tension. Inhibition by drainage (McDougall[9]) occurs.

Now in these dissociated states, separated from the personal consciousness by a plane of cleavage a plus tension finds no relief. The energy not being drained as normally, accumulates to the point of explosion, and breaking over the gap which separates it from the upper strata manifests itself in waves of disturbance therein. Thus we have the phenomena of epileptiform and hysteriform crises, transient deliria, episodic depressions and a multitude of other sensori-motor expressions. These expressions recur and naturally tend to become periodic.

On the other hand, during periods of inactivity of the upper consciousness, as in hypnotic, hypnoidal (Sidis[10]) and dream states, the secondary states tend to assume the ascendancy.

Whether the secondary states ever assume the dignity of a personality or not is merely a question of degree. They tend to

[9] McDougall: The Nature of Inhibitory Processes within the Nervous System. Brain, 1903.

[10] Sidis: Psychopathological Researches, New York, 1902. An Experimental Study of Sleep, Jour. Ab. Psych., Vol. III, Nos. 1, 2 and 3, 1908 Studies in Psychopathology, Boston Med. and Surg. Jour., Vol. CLVI Nos. 11, 12, 13, 14, and 15, 1907.

organize and to grow and if the process keeps up it is only a question of time when a new personality will be born. If these states grow largely at the expense of the personal consciousness this latter may finally assume a relative position of inferiority.

Hysterical Psychoses.—Hysterical delirium, stupor, and dream states especially may be, and usually are, only transitory disturbances but they may be of considerable duration and in any case, while they last, are veritable psychoses.

Aside from these acute episodes there are a few cases that throughout a prolonged attack seem to present only hysterical symptoms. There are other cases while presenting predominantly hysterical symptoms present also other symptoms which ally them to some other psychosis.

Just where these cases belong is doubtful. We must, however, concede the possibility of hysterical symptoms developing in connection with almost any other psychosis. A certain few cases start as apparently purely physical and after a more or less prolonged course deteriorate, the *degenerative hysteria,* of the older writers.

The trouble is that we have not as yet been able to define with sufficient accuracy the limits of hysteria.

Diagnosis.—Epilepsy is the most difficult disease from which to differentiate hysteria. This is particularly so because of the convulsive attacks in each. The diagnosis must often rest upon the presence of the hysterical stigmata in the interparoxysmal period, as the attacks are often not seen and cannot be distinguished by the description given. The presence of these stigmata will usually suffice, as hysterical convulsions and true epileptic convulsions seldom occur in the same patient. Hystero-epilepsy is not a combination of the two diseases, but hysteria with associated epileptiform attacks.

The amnesia of hysteria is peculiar in that careful questioning will disclose islands of memory throughout the amnesic region. These islands will often not be the same on repeatedly going over the ground. The field of memory fluctuates.

The differentiation from the other psychoses is to be made from the history and the presence of hysterical stigmata.

The whole question of the relation of hysteria to other diseases, to mental diseases such as dementia precox, to neuroses such as

epilepsy, to multiple sclerosis, chorea, etc., has been admirably and sanely reviewed by Voss.[11]

If, as seems to be generally acknowledged, the hysterical Anlage, the tendency to hysteria, or hysterisability as BERNHEIM would have it, may remain indefinitely latent until something happens to produce the characteristic response, then I do not see why the so-called hysteriform accompaniments of these various diseases cannot properly be considered as true hysteria. Why should not a multiple sclerosis be the activating agent in breaking down the resistance to the outcrop of the hysterical reaction?

All these efforts to limit, to bind in, to define hysteria within certain prescribed boundaries are not at all convincing and they fail, it seems to me, simply because hysteria does not confine its manifestations to any definite limits. It spreads out into all the available and adjoining territory and is indefinite and hazy in its outlines quite like other natural phenomena. We must not forget that definitions are human devices—nature has no sharply defined boundaries.

The effort of BABINSKI to exclude all phenomena which seem to be physical in character seems to rest on entirely inadequate conceptions. The whole field of psychopathology has too long been dominated by that bug-a-boo, the relation of the mental and the physical and the implied necessity of conceiving of each as in essence different from the other. This is but another example of an attempt to define an artificial boundary where none exists.

As between the most definitely physical or bodily processes on the one hand and the highest psychic on the other, an infinity of gradations exists and at no point can it be said that what was one has become the other. It is much more stimulating and effective to stick to facts wherever they may lead us than to create arbitrary boundaries which later on only serve to cut off our entrance to certain territories.

It seems to be very well demonstrated that the individual reacts to conditions by the development and organization of mechanisms which in their complex manifestations may include both physical and mental components.

It seems to me that in a consideration of such facts we may

[11] Voss: Klinische Beiträge zur Lehre von der Hysteria. Jena, Gustav Fischer, 1909.

find an explanation for the association of physiological disturbances with hysteria, such as the false gastropathies for instance, and also an explanation of those cases which start as hysteria apparently but which later on show symptoms of permanent mental deterioration. Those cases, which lead to a change of diagnosis from hysteria to dementia precox, also lead to the belief that the original diagnosis was in error. Why? Could it not be possible for a hysterical type of reaction in a badly organized individual to gradually unloose bits of physiological mechanism until organic changes had wrought permanent damage?

And so I think we must come to recognize the hysterical type of reaction wherever we see it, whether in connection with other conditions or alone. By so doing we will have a broader understanding of our cases than by always insisting upon a one-disease diagnosis.

Treatment.—The principle of treatment is to reëstablish the broken associations. This may be effectively accomplished by inducing a semi-sleeping state—the hypnoidal state of Sidis—tapping the subconscious in this way, and then by a gradual arousing of the patient bridging the gap between it and the upper consciousness.

It is sufficient to effect a cure of the special manifestations, in many cases, to secure a full recollection by the patient for the events forgotten and which include the events of the psychic traumatism. If these events are recalled and lived through, the patient reacting emotionally fully to them, their abnormal effects will disappear. This is the so-called " cathartic " method of treatment. The more recent method of treatment, and the best in its results, is psychoanalysis.

Psychasthenia.—Under this term Janet[12] includes obsessions, impulsions, insanity of doubt, tics, agitations, phobias, delirium of contact, anguishes, neurasthenias and the bizarre feelings of strangeness and of depersonalization often described under the name of cerebrocardiac neuropathy or disease of Krishaber. By considering all of these varied conditions together as results of a fundamental underlying state he would thus erect psychasthenia into a psychoneurosis.

This psychoneurosis represents at the mental end of the scale

12 Janet: Les Obsessions et la psychasthénie. Paris, 1903.

the conditions which at the physical are represented in neurasthenia. In fact there is a tendency recently manifested to consider only two great psychoneuroses, viz., hysteria and psychasthenia. This psychoneurosis has as its fundamental symptom the *lowering of the psychological tension.* If we can think of our mental force in mechanical terms and conceive of it as flowing along the fiber tracts like steam in a pipe, then we may believe that this force has to be maintained at a certain tension in order that the perceptions from the outside world may be appreciated at their true value. If attention is lowered the perceptions are not acute. This lack of acuteness gives origin to feelings on the part of the patient of incompleteness and insufficiency. Now this state of affairs involves a certain deficiency in the perception of reality which requires a certain concentration and complexity of content, in other words, a high psychological tension.

This lowering of psychological tension, feelings of incompleteness and deficiency in the *"function of the real"* constitutes the fundamental feature of all this class of phenomena.

To use another illustration. I have said that the perception of reality required a high psychological tension. It is as if the normal response to reality were represented by the explosion of say 100 grains of gunpowder: the psychasthenic response would be represented by 70 grains. In other words, unless the tension is high, the potential up to a certain point, the resulting explosion is an inadequate reaction, gives but a faint idea of what it really should be.

The psychasthenic symptoms are based upon this inadequate perception of reality. The hazy view of the world resulting from the lowered psychological tension results in hazy, inaccurate ways of thinking. The trends toward mysticism in art and literature are results in point. While lack of efficient perception makes the world of reality seem strange, unknowable, and at times of stress it seems to the psychasthenic that this vast external world of reality would close in upon him and crush him. It is the strange, the not understood, the mysterious of which we are afraid and so are accounted for the states of fear and anguish.

The lowered tension gives rise to various symptoms in proportion to the degree of lowering. If the mental functions are erected into a hierarchy in proportion to the difficulty of their accomplishment, it will be seen that the accurate estimation of

reality stands first, revery and imagination come lower down, and muscular movements last. As the tension is lowered reactions will tend to follow in the order of this psychological hierarchy.

Psychasthenia stands midway between epilepsy and hysteria. In both psychasthenia and epilepsy the fundamental condition JANET thinks is this lowering of psychological tension. In epilepsy this lowering is sudden, very profound, leading even to unconsciousness, and is then practically completely recovered from, while in psychasthenia it is more or less constant but of much less degree. Thus psychasthenia is attenuated and chronic epilepsy. Hysteria, on the other hand, is characterized by a "retraction of the field of consciousness." While in psychasthenia the defect is more or less uniform over the whole field of consciousness, in hysteria the portions of the field retained may be quite up to normal or even hypernormal.

The classification of the various symptoms of psychasthenia is difficult because of their multiplicity and variability. Using the word obsessions in a broad sense to include the conditions I have described as obsessions, fixed ideas and impulses, in the chapter on General Symptomatology, because of the desirability of considering them under different heads, we may divide obsessions into *emotional, intellectual* and *volitional,* in accordance with their predominating characters, realizing meantime that the distinctions are only general ones and the lines of differentiation not hard and fast.

Emotional obsessions include the various *phobias* and the *morbid desires.* Some of the more common phobias are *agoraphobia,* fear of open places—the subject is afraid to cross an open square, hugs to railings and keeps close to the houses. *Claustrophobia,* fear of closed spaces, crowded rooms. *Astraphobia,* fear of thunder and lightning. *Aërophobia,* fear of being in high places, etc.

These phobias come on suddenly, overwhelm the patient, who is seized with trembling, pallor, sweating and all the signs of fear, despite the fact that he appreciates fully meantime that there is no reason for fear but has a full understanding of the morbid character of his obsessions.

The morbid desires are in the main the desires for liquor and drugs. In *dipsomania* the patient has periodical attacks of discomfort, often with a feeling of pressure on the head and tachy-

cardia; this continues to grow worse until the desire to take liquor is yielded to. We have somewhat similar conditions with desire for morphine, cocaine, etc.

Volitional obsessions include the various *manias.* Some of the more common manias are *kleptomania*—impulses to theft, the patient often taking what is not wanted and what he could afford to buy. *Pyromania,* an impulse to set fire to things. *Arithmomania,* the impulse to count everything, the letters in a word, objects passing in the street, etc. *Onomatomania,* the obsession of a word, usually the impulse to repeat it over and over again or to seek for it in one's memory.

These manias, as in dipsomania, make the patient uncomfortable until yielded to; although the patient appreciates the abnormal character of the obsession, the tendency has finally to be yielded to. This is the characteristic described by the German word Zwang.

Intellectual obsessions are the obsessions which do not lead to action and which have not a large emotional content. Here would be included the doubters, who are always asking themselves questions about trivial things, though often in regard to religious matters, wondering if there is a God and the like. The so-called *metaphysicians* especially are occupied with abstract questions on the nature of the universe, problems of matter and mind and the like.

Régis[13] makes a class of *aboulic obsessions* which lead to inhibition of all action, producing such symptoms as *astasia-abasia*—inability to stand and walk. This symptom, however, is usually hysterical.

The peculiarity of all psychasthenic symptoms is that they occur with clear consciousness, the patient fully recognizing their abnormal nature. The new psychoanalytic movement has dismembered psychasthenia, splitting it up mainly into *hysteria, anxiety hysteria,* and *compulsion neurosis.*

Course and Prognosis.—The course of psychasthenia is episodic and the outlook in the main is not very good as to recovery, as there is usually a pronounced neuropathic basis for the symptoms. The psychasthenic, like the neurasthenic state, is found associated with many conditions and as a part of various psychoses.

Treatment.—The treatment should be directed to improving the

[13] Régis: A Practical Manual of Mental Medicine, 1898.

general health, but the main line of treatment is mental and requires the most detailed regulation and reëducation of the mental life.

A rational psychotherapy along psychoanalytic lines is indicated. This should include a careful regulation of the mental life within the powers of the individual, a getting away from old and vicious habits of thought by being shown their error, but, better, by being directed into new channels. The treatment involves a reëducation and is quite as delicate and skillful as the reëducation of the muscular habits in ticquers. It is no field for the novice, much less the charlatan.

Compulsion Neurosis.—A very similar mechanism to that of hysteria, except that the symptoms are not manifested in the physical but remain in the mental sphere, according to FREUD, is at work in the compulsion neurosis. He classifies certain of the phobias and the obsessions (compulsions) under this heading instead of following the lead of JANET and considering them as symptoms of psychasthenia.

In this class of cases the affect, instead of being converted into physical symptoms, is changed over by *displacement* to some indifferent idea. The disagreeable idea thus remains suppressed but the patient cannot understand the insistence and emotional coloring of the idea to which the affect has been transferred.

FREUD[14] believes the complex in this case as in hysteria has its origin in the sexual life and says: "The obsession represents a compensation or substitute for the unbearable sexual idea, and takes its place in consciousness."

The fundamental mechanism in compulsion neurosis seems to be an alternation between love and hate with no possibility of the formation of a satisfactory working compromise. The symptom formations are the results of efforts to effect a compromise and represent, upon analysis, the fulfillment of an erotic wish. The symbolic distortions are interpreted in the same way as are those of dreams.

Anxiety Neurosis of Freud.[15]—Out of the great mass of

[14] Freud: Selected Papers on Hysteria and Other Psychoneuroses, Nerv. and Ment. Dis. Monogr. Series, No. 4. Cited by Brill: Freud's Conception of the Psychoneuroses, N. Y. Med. Record, Dec. 25, 1909.

[15] Freud: Selected Papers on Hysteria and Other Psychoneuroses. Nerv. and Ment. Dis. Monogr. Series, No. 4.

material composing the psychoneuroses and which otherwise would be classed as neurasthenia, hysteria, or psychasthenia, FREUD has separated out certain cases which he thinks have a definite grouping of symptoms and so are entitled to consideration as a nosological entity.

The symptoms of this neurosis are in the main a *general irritability, anxious expectation, vertigo, phobias,* and *paræsthesias.* The anxiety aside from being more or less constant in the form of anxious expectation, or apprehension, comes in attacks which are of various forms, the principal ones of which are *cardiac disturbances, respiratory disturbances, profuse perspiration, trembling* and *shaking, inordinate appetite* often with *dizziness, diarrhea, locomotor dizziness, congestions* (vasomotor neurasthenia), *paræsthesias.*

Unlike hysteria, anxiety hysteria and the compulsion neurosis and similarly with neurasthenia, hypochondria and anxiety neurosis the origin of the trouble is not in the psychic sphere but in a lack of harmonious adjustment of the physiological functions of the sexual organs. This failure of physiological adjustment manifests itself in the psychic sphere as anxiety. The anxiety not having a mental origin is free to unite with any idea. There comes to be then "a quantum of freely floating anxiety which controls the choice of ideas by expectation and is forever ready to unite itself with any suitable ideation."[16]

Anxiety Hysteria.—In conversion hysteria the repressed affect is drafted into bodily innervations, in anxiety hysteria it remains in the mental sphere producing the various phobias. This is one of the most common of the neuroses and the most frequent to be found in childhood. It is, too, perhaps, the most hopeful for therapeutic attack. The therapeutic approach is psychoanalytic.

Fixation Hysteria.—In fixation hysteria, while there is a like tendency to replace the mental by a physical symptom there seems to be a tendency for a particular part of the body to become involved. Excellent examples were seen during the war in those cases in which the localization of the hysterical symptoms was determined by a wound. The fixation is upon the external parts

[16] Freud: Selected Papers on Hysteria and Other Psychoneuroses. Nerv. and Ment. Dis. Monogr. Series, No. 4.

of the body as distinguished from hypochondria in which the fixation is upon some internal organ.

Hypochondria.—An abnormal sensitiveness to the functioning of certain internal organs in contrast to the sensitiveness of external parts as in fixation hysteria. The fixation is at the level of *organ eroticism.*

Tic.—This peculiar type of motor manifestation has recently been very thoroughly studied by FERENCZI[17] who considers it a "narcissistic disease," developed in terms of a defensive mechanism to ward off threatened injury to the body, and producing fixation of libido upon single organs. An undue fixation of interest upon the body with the resulting hypersensitiveness and inability to endure physical stimuli are the conditions at the bottom of these defense reactions. Tic is thus allied with a whole host of motor manifestations in other fields such as fixation hysteria, hypochondria, dementia precox, occupation cramp, catatonia, mannerisms, stereotypies, habit spasm, coprolalia, echolalia, grimacing, negativism, rigidity, phonator tics, etc.

Tics are notoriously resistive to treatment.

Psychopathic Constitution.—There are many anomalies of character which because normal or usual to the individual cannot be said to properly constitute a psychosis, but because they lead to a rather inefficient type of adjustment of the individual to his environment, and because persons exhibiting these peculiarities often become actively disordered, may be considered as borderland conditions.

We have already in previous chapters learned something of the *hysteric* and *epileptic* characters. We know the general type of inefficiency of the *neurasthenic* and latterly have described the *psychasthenic* character, and attention has been called to the *unresistive* and the *post-traumatic* types with the intolerance of alcohol and fever. We probably also have a *manic-depressive* type and lately we have had our attention directed to the *"shut-in"* type as the type par excellence found in those cases which develop dementia precox.

Besides these there are the *"cranks,"* who, with some pet scheme, closely approach the paranoiac type and that host of *ill-*

[17] Ferenczi, S.: Psychoanalytical Observations on Tic. Internat. Jour. Psychoanalysis, March, 1921.

balanced, eccentric individuals who may be superficially brilliant but lack continuity of purpose and capacity for the continuous expenditure of effort in any one direction. Their life, to use the well chosen words of RÉGIS,[18] is one "long contradiction between the apparent wealth of means and poverty of results."

We have also the *pathological liar,* or *pseudologia phantastica,* and certain types of *swindlers.*

Constitutional anomalies of mood are seen, those who are always depressed for no particular reason—*psychopathic depression*—and the opposite state—*psychopathic exaltation.* Other cases never seem to be quite able to successfully cope with conditions; they are the failures of life, the cases of *constitutional inferiority.*

Conditions of *psychogenic depression* occur quite often in psychopathic individuals. Should a beautiful young woman severely scald her face, so that a permanent disfigurement was inevitable, a considerable depression would be quite natural. Should the depression lead to suicidal attempts and perhaps delusions, the psychopathic basis would be evident. Many weak characters who are led into crime develop a symptomatic depression when caught and sentenced. More pronounced defects of character are seen in the *criminal* classes, many of whom lack the ordinary moral inhibitions and are properly *moral imbeciles.*

There are many psychogenic states that occur in psychopathic individuals—*degenerates.* The so-called *prison psychoses,*[19] examples of the *situation* or *reactive psychoses,* are types and come about as the patient's reaction to the difficulties in which he finds himself. They may be hysterical, catatonic, paranoid, according to the type of individual. The mechanisms in this group depend upon the personality make-up of this individual: the content derives largely from the situation in which he finds himself and to which he is unable to make any satisfactory adjustment. They clear up promptly when the stress is removed—pardon, expiration of sentence, commutation of death sentence, etc.

To give some idea of the complexity of this region and the affiliation of the clinical pictures found therein with the psychoses

[18] Régis: A Practical Manual of Mental Medicine, 1898.

[19] Glueck: A Contribution to the Study of Psychogenesis in the Psychoses. Am. Jour. Insanity, Jan., 1912.

and neuroses as found in other situations, I give the following classification by KARPMAN[19a]:

PRISON REACTION TYPES

I. The Endogenous Reaction Types in Prisoners.
   A. The Criminal Psychopath.
   B. The Criminal Defective.
   C. The Criminal Psychoneurotic.
   D. The Criminal Psychotic (The True or Endogenous Psychoses in Prisoners).
      1. *Paranoia and Paranoid States.*
      2. *Dementia Precox and Allied Conditions.*
      3. *Manic-Depressive Psychoses.*
      4. *Toxic Psychoses.*
      5. *Epilepsy and Epileptic Psychoses.*
      6. *Neurosyphilis.*
      7. *Organic Brain Diseases (Other than Neurosyphilis).*
      8. *Combined, Mixed, and Unclassified Psychoses.*

II. The Exogenous Reaction Types in Prisoners.
   (True Prison Psychoses; The Situational or Reactive Psychoses in Prisoners.)
   A. The More Predominantly Schizophrenic Reaction Types.
      1. *Malingering, Malingering Psychoses, and Allied States.*
      2. *The Situational Psychoses Proper.*
         a. *Acute Panic.*
         b. *Paranoid States.*
            1. *Acute.*
            2. *Chronic.*
         c. *Hallucinosis.*
         d. *Confusional Hallucinosis.*
         e. *Delirium.*
         f. *Catatonic and Allied States.*
         g. *Mixed Types.*
         h. *Chronic Deterioration.*
      3. *The Regressive Prison Psychoses.*

[19a] Karpman, Ben: Psychoses in Criminals: Clinical Studies in the Psychopathology of Crime. Journal of Nervous and Mental Disease, Vol. 64, No. 4, October, 1926.

B. The More Predominantly Affect Reaction Types.
   1. *Depression.*
   2. *Agitated Depression.*
   3. *Excitement.*
   4. *Mixed Types.*
   5. *With Schizophrenic Features.*

C. The Psychoneurotic Reaction Types.
   1. *Hysterical.*
   2. *Neurasthenic.*
   3. *Mixed Types.*

It is in this borderland including dementia precox, the constitutionally inferior and the mentally defective, to which should be added the alcoholic, that we find the largest incidence of criminal behavior. NOLAN[19b] in a study of the Matteawan State Hospital (New York) material, some 646 patients, gives the following table as showing the distribution of crimes among clinical groups.

PER CENT DISTRIBUTION OF CRIMES AMONG CLINICAL GROUPS

	PER CENT OF TOTAL CRIMES						
Crime	Senile	General Paralysis	Alcoholic	Manic-Depressive	Dementia Precox	With Constitutional Psychopathic Inferiority	With Mental Deficiency
Homicide (all forms)	...	2.9	17.6	2.9	32.4	14.7	17.6
Assault (all forms)	...	3.8	24.1	7.6	25.3	17.7	6.3
Burglary	...	13.2	...	7.9	39.5	23.7	5.3
Larceny (all forms)	1.3	22.8	5.1	6.3	24.1	15.2	7.6
Public intoxication	2.9	2.9	70.6	...	5.9	5.9	...
Disorderly conduct	2.4	13.4	17.1	12.2	17.1	17.1	7.3
Vagrancy or prostitution	8.5	15.4	13.8	4.3	35.1	6.9	7.4
All crimes	3.6	11.5	16.9	7.3	25.5	14.7	7.4

Simulation.—Simulation has generally, and rightly, meant a conscious effort to deceive by imitating the symptoms of illness. Such a concept, however, is not adequate either for diagnosis or for dealing with difficult cases. For example, it has generally been supposed that if a patient could be "caught" in an examination by some trick which made the symptom disappear that he was therefore a simulator. Thus if a paraplegic could be made to get up and run under the stimulus of fear the conclusion was that he was a simulator. Our knowledge of psychogenic maladies in general and of hysteria in particular has changed our ideas

[19b] Nolan, W. J.: Some Characteristics of the Criminal Insane. The State Hospital Quarterly, Vol. V, No. 3, May, 1920.

about such matters. We know that the paralysis in these cases is not organic but functional (psychological) and that is really all that the above experiment demonstrates. The real question in such a situation is not whether the paralysis is psychological, that is admitted, but whether it is brought about by causes which are unconscious or whether there is on the part of the patient a clear, conscious intent to deceive and the symptom (paralysis) is assumed voluntarily for that purpose. In the former case the individual is obviously sick, in the latter case he is apparently a malingerer.

Even assuming though that we are dealing with a malingerer as defined above the diagnosis "simulation" is not an adequate diagnosis. It merely means a failure of capacity for dealing with reality at a relatively high level. There is something fundamentally wrong in a character way with the person who in his dealing with reality finds it necessary to resort to lies and deceit. If this is borne in mind the treatment can be much better adjusted to the needs of the situation. To think of the soldier, for instance, as a malingerer pure and simple means that he will be punished, that is be made to suffer for what he has done. To think of the situation as one of defective powers of adjustment will mean that if pain is inflicted it will be for the purpose of a definite end, improving the adjustment. In the first place anger and hate are the motives which influence the character and severity of the punishment: in the latter case the character and severity of the punishment are chosen to effect certain ends, namely increased capacity for adjustment to reality, the better relating of the two interests, the interests of the individual and the interests of society. Often the certainty of a moderate punishment will prevent the outcrop of a symptom, when the individual is strong enough, by an increased effort to keep himself in hand. Often punishment, no matter how severe, will not prevent the symptoms. In the first place the individual may be useful material for the particular service required (military), in the second place it will be to the advantage of the individual not to be punished (made still more inefficient by the severities of prison discipline which he is ill-conditioned to stand), and it will be of advantage to society (the army) not to waste time, effort and money in trying to do something with material that can never measure up to the requirements.

"Shell-Shock."—Under this term a great variety of conditions were included, more particularly during the early part of the war. Some of these conditions were apparently functional, but the finding of blood in the cerebrospinal fluid determined their organic nature. As the matter stands now the "shell-shock" cases include varieties of the psychoneuroses, particularly conversion hysteria and anxiety hysteria. Most, if not all, of the types of palsy (monoplegias, aphasias, abnormal attitudes and gaits) the anesthesias (blindness, deafness) belong in the conversion hysteria group. Along with the usual psychoneurotic symptoms may go unusually marked regressive symptoms (childishness, interest in toys) which were often fostered by the forms of treatment originally essayed.

The stresses of war serve to bring out latent neurotic taints, to cause the personality to break down along lines of cleavage determined by inadequately assimilated complexes. Treatment by suggestion, electric shocks, etc., can only be symptomatic and temporary in its effects. A psychoanalytic attack affords the rational method of approach and if time does not permit real analysis at least the methods of treatment outlined should be fashioned upon the principles which psychoanalysis has shown to be involved.

Anomalies of the Sexual Instinct.

Quantitative Anomalies.—These are *frigidity* or lack of desire for sexual congress—*sexual anæsthesia*—or *eroticism*—*sexual hyperæsthesia.*

Qualitative Anomalies.—These are *inversions* and *perversions.* Inversion consists of a lack of harmony between the physical and the psychical sex and leads to *homosexuality* or desire for persons of the same sex. Various physical anomalies are often found in these persons. For example, the general conformation of the body, pilosity, etc., may indicate one sex, while the genitalia are of the other.

Sex inheritance is *alternative.* That is both male and female characters are present in the germ and only one normally develops. Sometimes there seems to be an uncertainty as to which will develop and the result is a certain mixture which may take place either in the bodily or psychic sphere alone or in both.

The perversions are many and include the various abnormal means of gratifying the sexual appetite.

With respect both to inversion and perversion we must remember that in the young child the sexual sense has not developed and later as it develops and comes into prominence it differentiates and tends to specialize by centering its aims in a special direction, *i. e.,* towards the opposite sex and normal coitus. The child before this takes place is, to use a term of FREUD'S, *polymorphous-perverse.* He may be developed in any direction by appropriate influences or he may stay in the undeveloped, infantile stage.

The most important of the perversions are:

Masturbation.—Masturbation is very frequent among psychopaths and very often a result rather than a cause of mental anomalies though undoubtedly an important factor in some cases of acute psychosis. A transient period of onanism in infancy is probably normal and serves to focalize the sexual sensations on the normal erogenous zones.[20]

Active Algolagnia (*Sadism*).—The gratification of the sexual feeling by the infliction or sight of pain—real or simulated—in the latter case the sadism is *symbolic.* As the male is normally the more active and aggressive in the sexual relation we find, as might be expected, this anomaly more frequently in men.

Passive Algolagnia (*Masochism*).—The gratification of the sexual feeling by suffering pain—real or simulated. In the latter case it is *symbolic.* The female, being the more passive of the two sexes in the sexual relation, so we find an exaggeration of this passivity more common among women.

Homosexuality.—Sexual desire for the same sex.

Narcissism.—Fixation of the libido upon one's own body.

Fetichism.—Sexual excitement and gratification by the sight, contact or possession of some object or part of the body. The object is usually some wearing apparel, such as shoe, handkerchief, petticoat or a part of the body other than the sexual organs.

Bestiality.—Sexual relation with animals.

20 Freud: Three Contributions to the Theory of Sex, No. 7 of this series.

Exhibitionism.—Sexual gratification by exposure of the body, often of the genital organs.

Scoptophilia.—Pleasure derived from looking. The ambivalent opposite of exhibitionism (pleasure at being looked at). One who indulges the pleasure is a *voyeur.*

Coprophilia.—Love of excreta.

Necrophilia.—The desire to have sexual congress with a dead body.

CHAPTER XVIII.

Idiocy and Imbecility.

In drawing a distinction between dementia and idiocy, Esquirol well said: "The demented man is deprived of the good that he formerly enjoyed; he is a rich man become poor; the idiot has always lived in misfortune and poverty." The idiot, the imbecile, the feebleminded lack something; the insane are suffering from a disorder of that which they possess.

The distinction is here clearly drawn between a psychosis and idiocy and imbecility. The former is a breaking down, a disorder of mind, the other is the result of a certain lack of mind. In making this distinction we must not lose sight of the fact that the feebleminded, imbecile and idiot may develop a psychosis, and transient attacks of mental disturbance of this sort are not infrequently observed among them.

The various grades of idiocy and imbecility may take their origin at any point in the development of the individual, during intrauterine life, at birth as a result of injury, after birth as a result of injury or disease which interferes with further development.

Thus various defect conditions fall rather naturally into certain groups, but the same difficulty is experienced in endeavoring to classify them from any one standpoint, as was experienced in the realm of the psychoses. They have been classified under the following heads:

Classification

Feeblemindedness.—A condition of slight mental defectiveness capable of much improvement by educational methods. The afflicted individual may ultimately take a place in the world and be self-supporting under favorable circumstances.

Imbecility.—A condition of mental deficiency which can, however, be materially improved by training, but not sufficiently for the subject to take a place in the world.

Moral Imbecility is a condition of mental defectiveness which is shown predominantly in the absence of the highest functions, particularly the moral; capable of training to a considerable degree, but always a menace to society.

Idio-Imbecility is a condition midway between idiocy and imbecility.

Idiocy is a condition of profound mental defectiveness. The lower grades are unteachable, while the higher may be trained slightly in helf-help, *i. e.,* to attend to the calls of nature.

More recently a definite effort has been made, by means of the Binet-Simon measuring scale of intelligence, to determine the exact psychological age of the child as distinguished from its chronological age (see Chap. XXI). In accordance with the results attained by this scale the American Association for the Study of the Feebleminded have defined the terms idiot and imbecile anew. An *idiot* possesses a degree of mentality that does not go beyond the normal child of three years, an *imbecile* can not go beyond seven years, and from seven to twelve inclusive the individual is known as a *moron.*

Feeblemindedness is purely a relative term depending upon the standards arbitrarily set up and the demands for adjustment made by society. It is essentially, therefore, a sociological rather than a biological concept. From this point of view of social criteria the Royal College of Physicians of London formulated a definition of a feebleminded person which was adopted by the British Royal Commission[1] as follows: "one who is capable of earning a living under favorable circumstances, but is incapable, from mental defect existing from birth, or from an early age, (a) of competing on equal terms with his normal fellows; or (b) of managing himself and his affairs with ordinary prudence."

From this social point of view, too, the behavior of the individual is of immensely more importance than his intellectual level. Many very defective individuals make an excellent social adjustment, especially if they have been well trained. In fact the well trained defective is capable of functioning as a social asset of really very great value. The menial labor and the drudgery of the world is largely done by this class and many of their failures are due to the fact that more is expected of them than they can deliver. If they function within their limitations they are capable of being very good and useful citizens.

[1] Report of the Royal Commission on the Care and Control of the Feebleminded. 1908. Eight volumes. See also Davies, S. P.: Social Control of the Feebleminded. New York, 1923.

The following is WEYGANDT'S[2] classification based upon an etiological-clinical grouping.

1. Mental defect as the result of sensory deprivation.
2. Fundamental defect due to injury to the germ plasm including microcephaly, anencephaly, hydranencephaly, hemicephaly.
3. Mental weakness due to encephalitis including lobar sclerosis, porencephaly, cerebral infantile palsy.
4. Mental weakness due to meningitis including defect states following tuberculosis and endemic cerebrospinal meningitis.
5. Hydrocephaly.
6. Amaurotic family idiocy.
7. Tuberous hypertrophic sclerosis.
8. Mongolism.
9. Infantilism.
   a. dystrophic infantilism resulting from cardiopathy, nutritional disturbances, tuberculosis, lues, malaria, effects of toxins such as alcohol.
   b. dysglandular infantilism.
      aa. Status thymicolymphaticus and thymic idiocy
      bb. Dysthyreodism due to defective development of the thyroid including myxedema, cretinism, cachexia strumipriva. Also is included hyperthyroidism, Basedow's disease.
      cc. Dysgenitalism.
      dd. Dyspituitarism, hypophysial dysfunction rarely with acromegaly and giantism when the disease begins in youth, dystrophia adiposogenitalis. Also certain other forms of hypophysial giantism.
      ee. Epiphysial disorders.
      ff. Pluriglandular diseases.
10. Idiocy from hereditary lues.
11. Mental defect due to abuse of alcohol by parents.
12. Athetotic idiocy usually with symptoms of encephalitis. Little's disease may also be associated with mental defect.
13. Choreatic weakmindedness.

[2] Weygandt, W.: Erkennung der Geistesstörungen. München, 1920.

14. Spasmophilia.
15. Idiocy with rachitis.
16. Chondrodystrophic weakmindedness.
17. Oxycephaly.
18. Early forms of dementia precox.
19. Dementia infantilis.
20. Early forms of manic-depressive psychosis.
21. Hysterical degeneration.
22. Neurasthenia.
23. Traumatic idiocy.
24. Minor groups: mental disease and interferences in development in childhood due to tuberculosis, multiple sclerosis, familial spastic spinal paralysis, Westphal-Strumpell's pseudosclerosis or Wilson's disease, Friedreich's ataxia, etc.

It will be noted that groups 18–22 are transition forms to the more definite types of psychoses as they are found in adults.

Causes.—The causes of idiocy, like those of the psychoses, are numerous and varied. Hereditary defects are found in the ascendants in a large proportion of cases. Accidents and injuries, especially those associated with prolonged labor and instrumental delivery, are common causes, while diseases involving the brain, such as the acute infections—pneumonia, typhoid, the exanthemata—and syphilis often play a rôle. Alcoholism in one or both parents, especially drunkenness at the time of conception, may probably be a very important factor, while any infection, including syphilis, or debilitating conditions of the parents is important. Fright of the mother may be a potent factor as indicated by the statistics of births during sieges.

The popular idea that consanguineous marriages are productive of idiocy in the offspring is not borne out by statistics. Consanguineous marriages are probably no more dangerous than any others. They would only produce unduly direful results when a bad family strain is present in both parties and is thus cumulative in the offspring.

General Considerations.—The symptoms which should attract attention to the mental state of a child, aside from marked physical abnormalities, are a stupid and vacant look, prolonged and unprovoked crying and difficulty in taking the breast.

Later on it is noticeable that the several faculties do not develop when they should. The child neither learns to walk nor to talk as early as other children, and a study of other psychic qualities would develop the same fact. The degree of defect may be measured by the stage of development reached as compared with the average normal child. For such detailed comparisons the student is referred to special works.

The idiot is usually comparatively quiet or very excitable and has been correspondingly classified generally as *apathetic* and *excitable*. Certain of the excitable idiots keep up certain definite and characteristic movements almost continuously—these are the *rhythmic idiots*. Many other motor anomalies are found frequently, such as paralysis, athetosis and epilepsy.

The well-recognized clinical types, most of which have been known for many years, will be briefly described as follows:

Amaurotic Family Idiocy.—This form of idiocy, described by Sachs, seems to occur almost exclusively among Jewish children. The principal symptoms are idiocy, paralysis, usually spastic, of all four extremities and progressive blindness from optic nerve atrophy. The patients usually die during infancy.

Thyrogenous Idiocy.—This form includes idiocy due to endemic and sporadic cretinism and also cases due to myxedema. They present the characteristic symptoms of these diseases with those of idiocy.

Hydrocephalic Idiocy.—Idiocy associated with hydrocephaly. Although hydrocephalus usually leads to early death, life may be prolonged to an advanced age and marked degrees of the malady may occur without the profound defects of idiocy. A case of most pronounced hydrocephalus recently died in the hospital upwards of fifty years of age. During his earlier life he had made a livelihood by the simple process of ringing a church bell. During the latter month of his life he deteriorated very profoundly, became absolutely blind and deaf, unable to lift his tremendous head from the pillow and died in coma. Many of the symptoms were undoubtedly due to pressure, as the brain was found post-mortem to be little else than a bag of water.

Microcephalic Idiocy.—Idiocy associated with extreme smallness of head. No definite rule can of course be laid down as to the definite size of head that shall be considered as micro-

cephalic, but IRELAND[3] says in general that all heads below seventeen inches in circumference (431 millimeters) may be so considered.

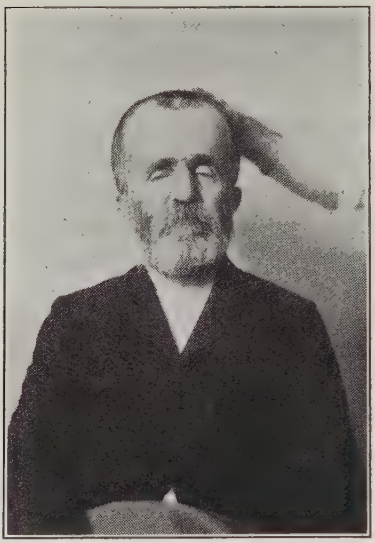


FIGURE 19. Organic dementia from internal hydrocephalus. The patient was an eccentric character with gradual deterioration. (During his life on two occasions he sold his head to physicians, but outlived them both.)

FIGURE 20. Patient with hydrocephalic dementia and extreme scoliosis. Known for many years as an eccentric but witty character.

Paralytic Idiocy.—Idiocy associated with paralysis. The commoner paralyses are the monoplegias and diplegias. These conditions are consequent upon gross cerebral lesions, such as the lack of cerebral substance, resulting in a cyst connected with the ventricle—*true porencephalus,* or due to cysts not connecting with the ventricles and resulting from softening, hemorrhage or inflammation—*false porencephalus.* It depends entirely upon the location of the lesions as to the symptoms.

Epileptic Idiocy.—Idiocy with epilepsy. Epilepsy is a common associate of idiocy, especially in those cases where there are gross cerebral lesions as in the paralytic idiots. The term epi-

[3] Ireland: The Mental Affections of Children. Idiocy, Imbecility, and Insanity. London, 1898.

leptic idiocy should be reserved for those cases where the idiocy may reasonably be supposed to depend on the epilepsy.

Traumatic Idiocy.—Idiocy the result of trauma. The most common traumas are those associated with prolonged and difficult labor with instrumental delivery.

Sensorial Idiocy.—Idiocy by deprivation. This is the idiocy that results when a child is deprived of two or more of the principal senses, such as sight and hearing. As knowledge and education are dependent in the first instance upon the integrity of the sensorium, such a serious defect, making it impossible for the child to receive the material out of which knowledge is elaborated, results in a lack of development of the mind.

Inflammatory Idiocy.—Here we find idiocy due to the various forms of inflammatory conditions of the brain and meninges. The cause of these inflammations may be any of the infectious fevers, as pneumonia, typhoid, the exanthemata. The inflammation may be meningitic or include the brain proper, as in Strümpell's infantile encephalitis of the motor region analogous to anterior poliomyelitis. The physical symptoms vary according to the location and the extent of destruction of tissue resulting.

Sclerotic Idiocy.—Idiocy associated with the condition known as *tuberous sclerosis.* These cases usually die young, being greatly reduced by frequent epileptic attacks. The post-mortem discloses numerous areas of firm consistence and white color in which the nervous elements are lacking. These patches may be discrete or the process may be more general. They may also be atrophic or hypertrophic. A hypertrophic, diffused process produces a brain very much larger and heavier than normal.

This peculiar pathological condition is correlated with a cutaneous affection, more particularly of the face and back—adenoma sebaceum—and mixed tumors of the kidney in which smooth muscle fiber is most prominent. The cerebellum is sometimes involved, there may be tumors of the ventricles and rhabdomyoma of the heart. Myomata of other organs have also been observed.

Syphilitic Types.—The Wassermann reaction was positive in 6.0 per cent. of the children surveyed in institutions for the feebleminded as compared with 5.2 per cent. in hospital children.[4] Aside

[4] Solomon, H. C., and M. H.: Syphilis of the Innocent. Washington, 1922.

from those patients who show clinical signs of hereditary syphilis, Hutchinson teeth, linear scars about the corners of the mouth and the nose, and interstitial keratitis, the relation of the syphilis to the defect is not adequately known. Not a few cases of juvenile paresis are mistaken for simple forms of defect.

Mongolism.—The Mongolian or kalmuc type is so-called because of the resemblance of the patient to the Mongolian race.[5] Syphilis, heredity and exhaustion of the reproductive powers of the mother have each been supposed to be the cause. The report of twins[6] only one of which was a Mongolian idiot argues pretty effectively against syphilis and reproductive exhaustion, but as they were of opposite sex and so from separate ova, Mendelian segregation could have occurred so that the condition might have been hereditary. HART,[7] in a statistical study of Mongolian idiocy, has found that a Mongolian ament is twenty-three times as likely to be born to a mother forty years old or older than to a mother between the ages of twenty and twenty-four. STRAUCH[8] reports Mongolism in twins, the first born of young, healthy parents, neither syphilitic nor alcoholic, and as a result of a search of the literature finds the occurrence of a Mongolian idiot with a normal twin has been observed in only double ovum twins as far as known, while Mongolism in both twins has been described only in twins of the same sex. They are probably single ovum twins. He concludes that the conception of Mongolism as being due to an endogenic factor seems to find support in these observations. CLARK[9] believes mongolism due to a fetal hyperthyroidism that ceases at birth.

The three classical symptoms refer to the skull, the palpebral fissures, and the tongue. The skull is brachycephalic, diminished in its antero-posterior diameter, flattened on the face and occiput but without recession of the frontal and supraoccipital regions as

[5] For a fascinating exposition that mongolism is a real reversion through the mongol type to the orang-utan, see The Mongol in Our Midst, by F. G. Crookshank. Published by B. P. Dutton & Co., New York, 1924.

[6] McLean: Mongolian Idiocy in One of Twins. Jour. Am. Med. Assn., Jan. 7, 1922.

[7] Jour. Am. Statistical Assn., September, 1923.

[8] Strauch, August: Journal of the American Medical Association, December 29, 1923.

[9] Clark, R. M.: The Mongol: A New Explanation. Jour. Ment. Sci., October, 1928.

in the microcephalic. The tongue is large, the circumvallate papillæ are hypertrophied and there are marked irregular transverse fissures probably due to the habit of sucking the tongue and the great vulnerability of the mucous membranes. The hands are broad, clumsy and spatulate and there is a frequent incurving of the little finger. The palms, instead of having two transverse lines (line of the heart and line of the head) are apt to present on one or both palms but one transverse line as is found in certain monkeys and among the anthropoid apes only in the orang. In sitting they tend to assume the sartorial posture. Mentally these children are good natured and tractable and easy to get along with. Their general health is poor and they generally die young. They are usually about four years in mental development but may reach seven. Thyroid does no good.

In twenty-three out of twenty-four cases reported by TIMME[10] the roentgenogram of the skull showed a peculiar change in the anterior portion of the pituitary fossa, consisting in an excavation under the anterior clinoid processes and presumably under the olivary process and optic groove. The excavation communicated directly with the anterior portion of the fossa itself. On the theoretic basis of anterior lobe disturbance, he has inaugurated a therapy which has had some degree of success thus far. This treatment includes the hypodermic injections of anterior lobe extract (antuitrin), combined with whole gland feeding and thyroid administration in small doses.

The significance of TIMME's findings have been questioned by GORDON and BELL,[11] who conclude, as a result of their investigations, that the shape of the sella does not differ significantly in normal and abnormal children. The excavation that has been described in Mongolian idiocy is extrasellar which may be uncovered or covered by the lesser wings of the sphenoid and is a

[10] Timme, W.: Mongolian Idiot. Arch. of Neur. and Psych., May, 1921, Vol. V, No. 5, p. 568.

[11] Gordon, M. B., and Bell, A. L.: A Roentgenographic Study of the Sella Turcica in Abnormal Children. Endocrinology, Vol. IX, No. 4, July–August, 1925.

For a discussion of the various theories of Mongolism see "A Genetic Study of Mongolism" by Ira S. Wile and S. Z. Orgel, Medical Journal and Record, April 18, 1928, page 431.

normal foundation found with the same frequency in all children and is not characteristic of any known disorder.

Oxycephalus.—Oxycephalus, acrocephalus, or the steeple-shaped or sugar loaf skull, while characteristic of microcephaly, occurs without such marked reduction in size of the skull. Aside from its occurrence in microcephaly it may be associated, though by no means always, with severe neurological symptoms such as optic atrophy and with marked mental defect. In these severe cases WEYGANDT[12] believes the condition is due to a disturbance in the development of the meninges from hereditary causes.

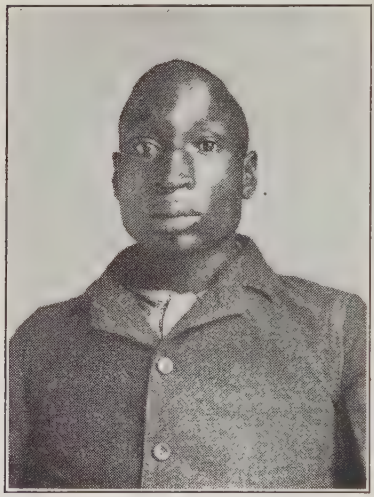


FIGURE 21. Photograph of a negro congenital imbecile. Note the expression of the face and the oxycephalic conformation of the skull.

Idiots-Savants.—These are rare cases who, although idiots, still have some special faculty wonderfully developed. It may be music, calculation, memory for some certain variety of facts, etc.

The calculators can name the answer to mathematical problems almost instantly; the musical prodigies often play well and even improvise; one of my cases could instantly name the day of the week for any date for years back. Many of these cases have a capacity for mimicry and buffoonery, and from this class undoubtedly were recruited, in the old days, many of the court fools. The psychology of these cases is not understood. The patients themselves are quite unable to give an explanation of their abilities.

Idiots are further spoken of by general descriptive terms that indicate their resemblance to certain types. Thus we have the *Mongolian, American Indian* and *Negroid* types.

The "*Kobold* type" among boys has been described from their

[12] Weygandt: Der Geisteszustand bei Turmschädel. Deutsch. Ztschr. f. Nervenheilk., Bd. 68 und 69.

fancied resemblance to the gnomes and goblins of fairy stories. They are short, thick-set, muscular individuals with large, thick-boned skulls balanced by a powerful jaw. The "*Steatic* type" among girls is found largely among the lower type of prostitutes and is characterized by a marked tendency to fatness, a coarse, greasy skin and inability for any sustained form of activity.[13]

A considerable deal of study has been devoted of late years to all sorts of defective conditions. Some of them I have mentioned elsewhere. In this connection I will call attention to certain developmental conditions in which the body, or the mind, or both, retain the child-like type. These conditions of *infantilism* are distinctly higher in the scale than the various types discussed above. ANTON[14] has specially studied these cases, and divides infantilism into general and partial. Under the causes of general infantilism he lays particular stress upon the balanced relations of the ductless glands. In the cases of partial infantilism he calls attention to the cases with lack of development of the sexual organs, the cardiovascular system, the vocal organs, the hair, and finally describes a form of pure psychic infantilism.

Course and Prognosis.—The condition of these defectives usually remains stationary, though sometimes severe epilepsy or severe illness may reduce them still further. Some may actually develop psychoses with hallucinations, abnormal activities, and, if the mentality permits, delusions. The prognosis is absolutely bad as to recovery and poor even as to life.

Comparatively few of the feebleminded reach an advanced age. From the U. S. Census Reports it appears that of those patients who died in institutions for the feebleminded in 1922, 50.4 per cent were under the age of twenty, and only 4.5 per cent were over the age of sixty. The percentage under twenty years of age at the time of death among the males was 54.3 and among the females 45.3. The highest number of deaths among patients in any age group occurred in the group fifteen to nineteen years.

The U. S. Census Report shows that the age of the patient population in institutions for the feebleminded is comparatively young, 65.7 per cent being between the ages of ten and thirty years,

[13] Auden, G. A.: The Borderlands of Feeblemindedness. The Lancet, September 29, 1928.

[14] Anton: Vier Vorträge über Entwicklungsstörungen beim Kinde. Berlin, 1908.

and only 1 per cent above the age of sixty. While the death rate among the feebleminded is much higher than among the normal population, the difference becomes less marked when the age factor is taken into consideration.

The death rate among the feebleminded varies in accordance with the degree of mental defect, the general average rate among idiots, imbeciles and morons per 1,000 under treatment in institutions for the feebleminded in 1922 being 68.7, 26.7 and 10.1 respectively. The death rate in each mental-status group is higher among males than among females. The death rate in the moron group approximates the death rate of the general population.

Treatment.—Aside from the thyroid treatment in the cretinous forms the main treatment is educational. This can, of course, only develop what is already there and in the main should be practical, teaching the child to care for itself. The most is to be hoped for in the sensory types, where there may be no real defect of brain, only an absence of sense organs. The well-known cases of Laura Bridgman and Helen Keller illustrate the wonderful results that may be accomplished in this class of cases. To get results at all requires in the highest degree patience, tireless application and ingenuity, qualities few persons possess.

Aside from these unusual sensorial types that may with patience be so highly trained the main problem of the education of the feebleminded is not to attempt solely to *intellectualize* them, a procedure which has very limited possibilities, but to so train them behavioristically that they will be able to get along socially at a level of adaptation that meets their limitations, in other words to *socialize* them. A good habit instilled by education is as difficult to dislodge as a bad habit, so that if these children can be placed early under favorable conditions they can be trained to make good citizens provided further that they are guided so that they attempt to function only within their limitations.

The hopelessness of the problem of the feebleminded has been too frequently emphasized and is based by the eugenists upon the fact that it is hereditary and that the factor that produces it is recessive, and further, there has been a general assumption that the feebleminded are very prolific. This last assumption is incorrect as regards the feebleminded boys, who, as a rule, have little initiative for finding a mate and are autoerotic in their tendencies rather than heterosexual, whereas for the feebleminded girl, her pro-

ductiveness is, so far as she is concerned, a passive matter. She is frequently sterilized by gonorrhea and when she has children she does not know how to care for them, so that they die early. These are some of the correctives that are operating.

Another assumption that has been made is that the feebleminded mate at random, which is obviously not true. FISHER,[15] after a careful examination of this whole question comes to the conclusion that the feebleminded, instead of constituting 1 in 320 taken at random in the general population, may better be regarded as constituting one-sixteenth of an intermating group consisting of 5 per cent. of the general population. He comes to this conclusion by calculations, which show that if the factor of feeblemindedness were really scattered at random only 5.5 per cent. of the parents of the feebleminded would themselves be feebleminded, whereas if the factor were concentrated, as he has assumed, 25 per cent. of the parents would be feebleminded. In an analysis of 325 cases by Major Darwin the actual number of feebleminded parents was actually found to be 29.5 per cent. Based upon these figures Fisher concludes that the effect of segregation, because of the concentration of the defect in a limited number of strains, might produce as high a reduction of the incidence of feeblemindedness as 36 per cent. in one generation.

[15] Fisher, R. A.: Journal of Heredity, Dec., 1927.

PART III

METHODS OF EXAMINATION

CHAPTER XIX.

Principles and Methods of Examination.

In no department of medicine is a complete examination of the patient more important than in the department of psychiatry. This examination must not only include the symptoms that the patient may present when seen, but must also include the most detailed obtainable anamnesis. It must be borne in mind that a psychosis is a condition of an individual who was previously well and that above all it is not a something that comes from without, attacks and seizes on the patient like, for example, a pathogenic microörganism, but is rather to be considered as a type of reaction of the individual to certain inimical conditions. In order, therefore, to understand a particular case it is of the highest importance to have, as fully as possible, a conception of the individual before he became afflicted, so that we may understand the symptoms which are the expressions of this reaction.

The scheme of examination which follows is directed primarily to elucidating the mental state. It is taken for granted that the student is familiar with the various methods of physical examination. The omission of specific directions as to the physical examination is not, however, to be taken as an indication that it is considered unimportant. On the contrary a physical examination is of the utmost importance and unless it is made the risk is bound to be run that the key to the whole situation will be overlooked. We have already seen (Chap. III) that the individual, from the standpoint of the psychiatrist, has to be considered as a biological unit and that mental reactions are reactions of the unit as a whole. The condition of the several organs is therefore of great importance as bearing upon the ultimate efficiency of this reaction.

Mental disorders at best are obscure phenomena and no pains should be spared to illuminate them from every quarter. It is not, of course, expected that every possible physical test will be applied to each case. For example, it would be quite foolish to stain for the malarial parasite unless there was some clinical evidence of malarial infection. The usual examination of heart,

lungs and urine should, however, be made in each instance. Similarly with the neurological examination: Trousseau's or Chvostek's signs would hardly be thought of unless tetany were suspected, while in every case the reaction of the pupils to light and accommodation and the patellar tendon reflex should be recorded and in patients suspected of organic brain disease or paresis the Babinski reflex and Biernacki's sign would be examined for.

In indicating what is important to bring out in the examination, the specific character of the information desired is set forth for the most part by questions, while for more detailed information special tests, which are given in full, have been devised.

The complete examination will be considered under the following five headings, the first three of which relate entirely to the anamnesis and the last two to the examination of the patient himself.

I. History of the Family.
II. History of the Patient.
III. History of the Present Illness.
IV. General Observation of the Patient.
V. Special Examination of the Patient.
A. Physical.
B. Neurological.
C. Mental. { General. / Special. / Special Tests.

I. History of Family.

Parents:

Were parents of patient related, or did they differ greatly in age?

Mental Characteristics of Father and Mother:

What were their mental characteristics (*i. e.*, disposition, temperament, etc.)?

Did either have extraordinary gifts, one-sided talents, or abnormal traits?

Nervous and Mental Disorders:

Was either nervous? What were the symptoms?

Did either have convulsions?

Did either have periodical headaches, migraine or hemicrania?

Was either neurasthenic?

Was either ever insane?

Was either at any time a patient in a hospital for nervous or mental diseases? Where? When, and how long did he or she remain? What age at the time? How long after or before the patient was born?

Did either have any other disorders (tics, etc.)?

Other Diseases:

Did either have constitutional diseases? Syphilis? Tuberculosis? Diabetes? Arthritis?

Alcohol:

Was either addicted to the use of alcohol? How much did they take (in day, week, month, etc.)?

How long was it taken (years)?

What was the result? Did either have delirium tremens?

Crime and Suicide:

Was either a criminal? What crimes did either commit? Was he or she punished by law? What was the punishment?

Did either commit or attempt suicide? Under what circumstances?

Defects of Siblings:[1]

Did the siblings of either father or mother die young? What were the causes of death?

Were the siblings of either congenitally deformed? Were any blind? Deaf? Dumb?

Did siblings of either have convulsions or other nervous disease?

Were any insane, or patients in a hospital for nervous or mental diseases?

Grandparents:

If there appears to be a hereditary taint, get details as in the above questions for both the maternal and the paternal grandparents.

Siblings of Patient:

Are or were these siblings of patient? Give in order (noting male and female), and get age, if living, or age at and cause of death. Inquire regarding nervous and mental diseases as in questions above.

[1] Siblings is a convenient term used to denote children of the same parent.

Objects.—An understanding of the psychosis has to be based upon an understanding of the individual in whom it develops. To this end it is necessary to gather enough information about his ancestors to appreciate what he came into the world with, what were the hereditary factors with which he started, the hereditary burdens, maybe, with which he was handicapped.

A study of the immediate family will also give some idea of the character of environmental influences to which he has been subjected.

II. History of Patient.

Full Name and Age:

(In years and months).

Address:

What is the address of the patient? How long has he lived there?

Occupation:

What is the business, profession or occupation of the patient? How long has he been thus occupied?

What previous occupation has he had? Get the details of how long he has retained each position, how successful he was in each one, and why he left.

Birth:

At the time of the birth of the patient did the mother have difficult labor? Were instruments used? What was the cause of the obstetrical difficulty?

Early Childhood:

Had the patient convulsions in childhood? How old was he or she when these began? How many years did they continue? How long was each seizure? Give details regarding their character (*e. g.*, loss of consciousness; local or general; how brought on; etc.).

Had the patient rickets?

What other diseases in childhood did the patient have? When, and with what result?

When did he learn to walk?

When did he learn to talk?

School:

When did he first attend school? Where did he go? How long did he remain at school? Why did he leave? In school was he bright, average, or stupid?

Injuries and Diseases in Later Life:

Has the patient had any head injuries or convulsions (*i. e.*, beyond what was mentioned in answer to question above)?

Has he had gonorrhea?

Has he had syphilis?

What treatment for the latter did he receive, and what were the after effects?

What other diseases has patient had? What were the after effects?

Alcohol:

Has patient taken alcohol in any form (beer, wine, whiskey, tonic, medicine, etc.)? How much of each has he taken, by the day, week, or month? How long has he been taking alcohol? Has he become drunk? Has he ever had delirium tremens? Has the alcohol made him pleasant or disagreeable?

Other Habits:

Has the patient taken drugs, such as cocaine, morphine, opium, or any others for long periods of time?

Has he used tobacco? Did he smoke, chew or snuff? How much tobacco did he use in a day; in a week?

Marriage and Children:

Is he or has the patient been married? When was he married? Is the (husband) wife still living? How many times has he been married?

Has the married life been happy? If not, why not?

Has the patient or wife any gynecological or menstrual difficulties? When did catamenia begin? Has it been regular? When did catamenia end?

Has the patient or wife had abortions or miscarriages? Give the details. (How often, when, and how were they brought about?)

How many children has patient had? Give them in order, noting sex, age, nervous and mental diseases, etc.

Previous Attacks:

Has the patient had similar attacks before? What were the symptoms? How long did the condition last? Did he go to a hospital for nervous or mental diseases?

If he has not had similar attacks before, inquire if he has had periods of depression or of exaltation, how long these lasted, what was done during these attacks, etc.

Get any further details about the disposition of the patient; how he got on with his companions, whether or not he was sociable, moody, inclined to look on the bright or the dark side of things, etc.

Objects.—The object of this study of the patient is to acquire a knowledge of his makeup. It is as important for the understanding of the psychosis to know the type of personality[2] out of which it developed as to know the hereditary factors. Here we get an idea of his ability to acquire knowledge, his practical capacity to use such knowledge, his ability to fit into difficult situations—to adapt himself to his environment. This power of adaptation is indicated by a consecutive statement of his different positions, why he took up the work in each instance, the wages he received, whether he was advanced or remained a long time in an inferior position, how long he was employed each time and the circumstances surrounding his leaving. Such a record is frequently illuminating by showing lack of continuity, inability to stick to any given line of conduct, and incapacity for attaining any considerable degree of efficiency. It may also bring out the character traits upon which the inefficiency was based, as for example, passivity, lack of initiative and creative ability, preference for being led, and uncertainty and impulsiveness. Any special traits should be noted, particularly dominant moods, a feeling of inefficiency, excessive optimism. It is important to note, too, his capacity for coming into efficient contact with his fellows—Did he make friends readily? As bearing upon these character traits the sexual life should be inquired into, particularly as to tendencies to exclusiveness, to being shut-in, masturbation, autoerotic phantasies and like tendencies which interfere with an efficient relation to reality.

[2] For an excellent outline for the study of make-up see "A Guide to the Descriptive Study of the Personality" by George S. Amsden, 1923.

It is important to note the feeling attitude toward the several members of the family group, particularly the father and mother, brothers and sisters or those who stand in their place. Recent psychological studies indicate that the original set of the feelings as determined in the family furnishes the form, the paradigm, into which future emotional experiences must fit. It is not uncommon, for example, to see a patient reproduce in his psychosis the signs of illness from which his father or mother or some member of his family suffered when he was an infant. Such matters are of great importance for an evaluation of the patient's emotional orientation.

III. History of the Present Illness.

Cause and Onset:

Did the present illness come on as the result of an accident or disease? Did the patient have a physical or a mental shock? Has he been under extraordinary strain for some time? Is the present attack thought to be due to excess of any sort? Specify.

Did the attack come on gradually or suddenly?

General Physical and Mental Changes:

Has there been a change of character in the patient? Has he been agreeable to his wife (husband) and children, to friends and neighbors?

Has he appeared to be dazed, or quiet, or restless? Has he been excited?

Has he been tidy in feeding and in his other habits?

Has he spoken much or little, or has he been dumb?

Has he slept well? How many hours has he slept each night? Has he slept regularly.

Has he eaten well, or little? Has he had a perverse or abnormal appetite? Has he taken his meals regularly? Does he give any explanation for his poor appetite or his refusal to eat?

What was the patient's weight before the illness began?

When other changes in the physical condition of the patient have been noted since the beginning of the illness? Has he been tremulous in hands or in speech? Has he become bald or has the hair whitened?

Emotional Condition:

Has the patient been depressed, or unduly joyful, or apathetic?

Has he been passionate, or inclined to anger, or threatening?

Hallucinations and Delusions:

Has he heard imaginary voices? What have they said?

Did he go through the house looking under the beds and the furniture, and in the cupboards? Did he listen in corners, or at the walls? Did he look at definite points for some time?

Has he had ideas of persecution, or of grandeur?

Do the delusions change?

Suicide and Homicide:

Has he made attempts at suicide; at homicide? What were the exciting causes?

Intellectual and Memory Defects:

Has he shown any intellectual defect? Has he been able to carry on his business in the proper manner? Has he made peculiar or ill-advised purchases?

Has he shown any defect in memory? Has he remembered his business engagements? Does he recognize his friends or relatives? Does he mistake persons? Has he kept track of the days of the week and of the month? Has he known where he has been?

Moral and Legal Laxness:

Has the patient offended against the law; against morality? How did he so offend and with what result?

Insight:

Has he understood that he has been mentally different than he is normally? Does he appreciate the nature of his disorder?

Miscellaneous:

Has the patient any indications of stereotypy, or of catalepsy, of apparent playfulness, of impulsive actions?

Add any other information that the informant can give regarding mental change in the patient.

Note the name and address of the informant, and the relation he bears to the patient.

Object.—None of the circumstances surrounding the onset of the psychosis are unimportant. They should all be considered to have meaning and their meaning should be sought if it appears

to have any bearing on the psychosis. The nature of the hallucinations should always be carefully inquired into. What the voices say, for example, is bound to be of the greatest importance in understanding the psychosis, in getting some idea as to the nature of the difficulties at the psychological level.

IV. General Observation of the Patient.

Is he in bed, about the ward, on parole?

Facial Expression:

Does the patient look sad, fearful, gay, hostile, suspicious, visionary, expressionless, intent, arrogant, sleepy, cyanotic, demented?

Movements:

Are there movements of the body, of the head, of the face? Is there Schnauzkrampf? Are there rhythmic quiverings of the mouth? Are there wrinklings of the forehead? Are there stereotyped movements?

Does the patient walk straight and to some purpose? Does he walk irregularly or go from one thing to another? Does he go slowly or quickly?

Appearance and Demeanor:

How does he carry his hands? Is his hair tidy or unkempt? Is he fully dressed, half-dressed, or naked? Is his clothing well kept? Does it show that he has been untidy in feeding and in drinking? Do the clothes fit the patient?

Mental Observations:

Did he voluntarily complain of ill-being, or ill-treatment, or speak of his delusions, or his feelings?

Was he coherent?

Was it difficult to keep him on the line of questioning?

Did he coöperate in the mental and physical examinations, or did he raise objections to them?

How did he receive the visits of the physicians?

Objects.—The general object of this examination is to get some information that the patient is unable to tell but which may be obtained by being able to understand outward manifestations. All the peculiar facial expressions, attitudes of the body, emotional waves, stray expressions, silly conduct, apparently meaningless questions have significance if the examiner is capable of finding

it. A constant attitude of watchfulness for meanings is the keynote of this portion of the examination.

V. Special Examinations of the Patient.

A. Physical Examination.

Status Corporis.

Form, nutrition.

Skin, scars (penis), inside of mouth (mucous patches, scars on side of tongue from teeth, absence of papillæ).

Decubitis.

Bones and joints.

Respiratory system, lungs.

Circulatory system, heart, œdema, cyanosis of dependent parts

Genito-urinary system, urinalysis (always).

Gastro-intestinal organs, stomach contents.

Glands.

Blood, pressure, hæmoglobin, erythrocytes, leucocytes.

Abdomen.

B. Neurological Examination.

Sensation.

Touch:

touch threshold on the head, neck, arms, hands, legs, feet, abdomen, chest.

accuracy of localization on the head, neck, arms, legs, feet, abdomen, chest.

double joint threshold on the head, neck, arms, hands, legs, feet, abdomen, chest.

Pressure:

discrimination.

Pain:

threshold on the head, neck, arms, hands, legs, feet, abdomen, chest.

Temperature:

perception of temperature.

perception of differences

Stereognostic sense.

Joint and muscle sense:
- passive movements.
- active movements.

Organic sensations:
- hunger.
- thirst.
- fatigue.
- sexual.
- desire for urination.
- desire for defecation.

Subjective organic sensations:
- formication.
- hyperesthesia.
- hyperalgesia.
- anesthesia.
- analgesia.
- feeling of reality.

Movement:
- *a.* rapidity of movement.
- *b.* accuracy of movement.
- *c.* force of movement.
- *d.* limited movements.
- *e.* movement of special parts.
  - gait—spastic, steppage, ataxic, cerebellar, hemiplegic, propulsive.

Cranial Nerves.

I. *Olfactory.*
- Smell:
  - tests with solutions.
  - subjective smells, referred to self or environment?

II. *Optic.*
- Vision:
  - visual acuity.
  - visual fields; hemianopia, contractions?
  - color vision.
  - entoptic phenomena.
  - ophthalmoscopic examination.
  - hallucinations, character?

III, IV, VI. *Oculo-motor, Patheticus, Abducens.*

- Movements of eyes in all directions.
- Squint.
- Diplopia.
- Ptosis.
- Nystagmus:
  - horizontal.
  - vertical.
  - rotary.
- Pupils:
  - size.
  - outline, regular or irregular.
  - reaction to light.
  - reaction to accommodation.
  - consensual reflex.
  - sympathetic reflex.

V. *Trigeminus.*

- Corneal, conjuctival, palpebral reflexes.
- Supraorbital, infraorbital, mental points of exit sensitive or not.
- Chewing movements.
- Taste:
  - bitter, sweet, salt, sour.
  - subjective tastes, before or after meals.

VII. *Facial.*

- Facial symmetry—in repose, in smiling, in wrinkling forehead, in showing teeth.
- Naso-labial folds, are both equally marked?
- Whistling, puffing cheeks.
- Movements of lips in showing teeth (tremor).
- Tremor about mouth under emotion on in saying difficult words (test phrases).
- Atrophy.
- Paralysis.

VIII. *Acoustic.*

- Hearing:
  - acute, subacute, or deaf?
  - test of air and bone conduction.
  - high and low tones.
  - subjective noises, voices?

Vertigo:
subjective.
objective.

IX, X, XI. *Glossopharyngeal, Vagus, Accessory.*
Palate at rest, in phonation.
Swallowing.
Pharyngeal reflex.

XII. *Hypoglossal.*
Movements of tongue on protrusion (hesitation—trombone tongue).
Position of protruded tongue.
Tremor—fibrillary or en masse?
Atrophy.

Upper Extremity.
Atrophy.
Hypertrophy.
Muscular spasm or hypotonia.
Muscular force—dynamometer.
Tremor: at rest, intention.
F. N. T. finger nose test.
F. F. T. finger finger test.
Reflexes: triceps, radial periosteal.
Sense of position of joints.
Stereognosis.
Adiadokokinesis.
Sensitiveness of nerve trunks.

Trunk.
Atrophy.
Hypertrophy.
Paresis.
Dermographia.
Reflexes: cremasteric, epigastric, bladder, anal.
Tender points: vertebræ, breast, ovarian.
Boisseau.

Lower Extremity.
Atrophy.
Hypertrophy.
Muscular spasm or hypotonia.
Muscular force.

Reflexes: patellar, contralateral adductor. Achilles tendon, plantar.
Babinski toe sign.
Ankle clonus.
Nerve trunk sensitiveness.
Lasègue.
Romberg.
K. H. T.: knee heel test.
Sense of position of joints.
Gait—eyes open and closed.

C. Mental Examination of Patient.

General Memory and Orientation:

What is your full name?
Where were you born? Where do you live?
What is your age?
In what year were you born?
What year is this? What month is this? What day of the month? What day of the week is it?
(If the answers to the foregoing questions are not consistent, try to get the patient to explain the discrepancy.)
What city is this? What place is this? How far from your home is this?
When did you come here? How long have you been here?
Who brought you here? How did you come?
What did you do when you arrived?
Whom did you see when you arrived? Did you ever see me before? What is my name? What is his (other physician's) name?
When did you get up this morning? Did you have breakfast? What did you have? Did you have dinner? Did you have supper? What did you have for those meals?
Has anyone visited you? Who was it? Is he a relative? When did he come?

General Understanding and Insight:

What kind of a place is this? What kind of people are here? Who are they (patients)?

Who are they (nurses and attendants)? Who am I, or who are we (physicians)?

Why are you here? Did you want to come?

Is there anything wrong with you? Are you sick? Do you feel quite well? Is your mind all right?

Special Memory:

Family: What are the names of your parents? Are they living? Where do they live? What was the name of your mother before she was married? How many brothers and sisters did you have? Give their names? Are they all living? Which ones are dead? Of what did they die? How old were they at time of death? Where do those living live? What do they do?

School: Where did you first go to school? What age were you at that time? What other schools did you attend? Give the names of some of your teachers.

Occupations: What is your occupation? When did you first go to work? What age were you? What year was that? What other work have you done? Give the dates and the time for each position that you have had, and tell why you left each place?

Marriage and Children: Are you married? When were you married? How long ago is that? What was your wife's (or your) maiden name? Have you children? When were they born? How many are now living? How old are those now living? What are their names? Where do they live? How many are dead? How old were those that died? Of what diseases did they die? Has your wife (or you) had miscarriages or abortions?

Diseases: What diseases did you have as a child? Did you ever have convulsions? In these did you lose consciousness? Did you ever have a blow on the head or a fall? Have you had syphilis? Were you treated for this? How long ago did

you have it and how long did the treatment continue? Did your hair fall out? Did you have sores on your penis (or vulva) and other parts of the body? Other details of the effects of the syphilis.

Alcohol: Do you take alcohol in any form? How much do you take (number of glasses a day or week)? Have you ever been drunk? Have you ever had delirium tremens?

Other Drugs: Have you ever taken cocaine or morphine? How long have you taken them? How much have you taken in a day?

Special Examination About the Present Condition:

Special Insight Into the Condition:

Emotional: Do you feel all right, or depressed, or excited, or indifferent? Are you always this way? If not, how are you at other times? How were you six months ago? When did this feeling begin? What was the cause of it? Did it come on suddenly? Are you sad or afraid?

a. Have you had any peculiar experiences?

b. Is anything being done to you or has anything been done to you to make you sad or afraid?

c. If not, why are you sad or afraid?

d. What do you fear?

e. Do you think you are being watched, or talked about?

f. Have people been persecuting you, or have they tried to poison you, or to rob you, or to influence your mind, or to compel you to do things that you do not wish to do?

g. Who are trying to do these things?

h. Why do they do it?

i. How have your companions and your friends treated you? How has your wife (or husband) treated you?

j. Has this been planned out?

k. What makes you think so? (Get a full account of the systematization of the delusions

and note especially the retrospective interpretations and the falsifications of the same.)

Bodily: Is your bodily condition good? Do you feel physically well? (Get a voluntary account of any peculiar bodily feeling of the patient, and if this is not possible carefully question, using as few leading questions as possible, to bring out any localized or general feeling of bodily change, etc.)

Head: Does your head feel all right? How is your mind? (If there is insight into the condition, get a full account from the patient of what he thinks regarding the changed conditions.)

a. Do you have peculiar thoughts?

b. Do thoughts to do or say things spring up in your mind?

Auditory Hallucinations:

a. Do you hear things?

b. Are they noises?

c. When do you usually hear them? Are they heard oftener when you are alone, or with other people?

d. Where do they come from? From the people about you, or from the walls and ceilings, or from other rooms?

e. If voices, can you recognize them? Are they plain? Are they real voices or only thoughts? Do you hold conversations with them? Do you reply to their questions or to what they say? Do you reply aloud, or do you only think the reply? Do you say pleasant or disagreeable things? Do the voices or noises go on continually? Do they stop when other people talk with you, or when you talk, or when you listen to other things, for example, music?

Visual Hallucinations:

a. Do you see things? Are they people, or animals, or things?

b. When do you usually see them, in daylight, in the dark, when you are in bed, when your eyes are open or shut?

c. Do they move or remain in one place? Do they seem to be in special places on the floor, in the corners of the room?

d. Do they always seem to be in front of your eyes? Can you get rid of them by turning your head?

e. Do they seem natural? Are they the colors you would expect such things to have? Are they transparent, so that you can look through them?

f. Can you get them to disappear? How do you do this?

Memory: Is your memory good? Has it always been good (or poor) as it is now? Have you difficulty in remembering any special things?

Attention: Can you attend to things as well now as you could?

Thinking: Can you think well? Do you understand readily what is said to you? Does it take you some time to think out the answer to questions? Do you understand what you read?

Capability: Can you do things as well now as you could? Do you have any difficulty in fixing your mind on a thing? Have you any difficulty in starting to do things? Do you feel more disinclined to get up in the morning than you used to? Have you any difficulty in dressing, in eating, in speaking, in walking? Do you feel able to go to work?

Sleep: Do you sleep well? How many hours at night? Do you ever sleep in the daytime? Do you feel rested after your sleep?

Dreams: Do you dream? How often do you dream?

a. Do you dream of things that have happened to you recently, or some time ago?

b. Do you dream of seeing things, or of hearing things, or of things tasted, smelled, touched, etc.?

c. Do you dream of imaginary and of impossible things?

d. Does the same dream come twice or more? Do they change every time?

e. Are the dreams pleasant or disagreeable? Get the patient to describe as accurately as he can one or more of his dreams and if he cannot at the time remember them, tell him that you will ask him again about them and to try to remember any that occur until you ask him again.

Explanation: Bring up before the patient some of the things mentioned in the history of his case as obtained from his relatives or physician, and get him to explain the events.

a. Impulsive or peculiar actions.

b. Suicidal or homicidal attempts.

c. Hallucinations and delusions.

d. Moral laxness.

e. Lack of judgment.

Objects.—In all this portion of the examination the object should be to find the meaning of the symptoms. It is not enough to describe an hallucination, for example, its meaning should be discovered. The dreams are a particularly valuable avenue to the inner thoughts and the deeper meanings.

Special Tests:

Speech:

Motor-Vocal:

Does the patient answer quickly or slowly? Does he stammer, or stutter, or slur, or jumble his words? Is there "jargon" speech?

Have him repeat some of the following words and phrases, and describe the character of the repetition, whether normal, slurring, etc. Third riding artillery brigade.

Peter Piper picked a peck of pickled peppers.

Conservative.	Perturbation.
Statistical.	Fastidiousness.
Irretrievable.	Autobiography.

Are there twitchings of the facial muscles, of the lips, etc., while the patient is speaking? Are there tremors?

Motor-Written:

Have the patient write his name, the date of his birth, the city in which he lives, the name of the present place, and the date.

Have him write from dictation a short sentence or phrase; *e.g.,*

The United States of America.
The evening has come.
Contentment is a pearl of great price.
Where shall I find hope?

Have him copy one or more typewritten phrases or words.

Sensory-Hearing:

Does the patient understand what is said to him readily?

Does he obey simple commands, *e. g.*, stand up, show your tongue, cross your legs, squeeze my hand? If not, is it because he does not understand you or is it because he will not?

If he obeys the simple commands, does he do so as readily in the more complicated ones? *E. g.,* walk to the other end of the room, turn about quickly, walk back, turn your chair around, sit down and cross your legs.

Sensory-Visual:

Does he read words aloud correctly? Does he read numbers, sentences, etc., correctly?

Does he name colors (differentiate between color blindness and inability to find the name for a common color, *e. g.,* black, red, white), objects, and pictures correctly?

Does the patient use wrong words (paraphasia)? Does he have difficulty in getting the name or the word for a thing?

Does he have a tendency to repeat certain words, and do certain words recur throughout the examination?

Apprehension and Apperception:

Summarize the results of the examination of the patient up to this point in respect to his ability to apprehend and to comprehend the situation; how much insight into his condition he has, whether he has been quick or slow to grasp the meaning of questions, whether or not he seems able to take in more than one thing at a time.

Have the patient read aloud one of the following stories, ask him to give the point of it in his own words. Note how well he does the original reading, and record accurately what he says in giving the content of the story.

Cowboy Story—A cowboy from Arizona went to San Francisco with his dog, which he left at a dealer's while he purchased a new suit of clothes. Dressed finely, he went to the dog, whistled to him, called him by name and patted him. But the dog would have nothing to do with him in his new hat and coat but gave a mournful howl. Coaxing was of no effect, so the cowboy went away and donned his old garments, whereupon the dog immediately showed his wild joy on seeing his master as he thought he ought to be.

Gilded Boy Story.—It is related that at the coronation of one of the popes about three hundred years ago a little boy was chosen to act the part of an angel; and in order that his appearance might be as gorgeous as possible he was covered from head to foot with a coating of gold foil. He was soon taken sick and although every known means was employed for his recovery, except the removal of his fatal golden covering, he died in a few hours.

Polar Bear Story.—A female polar bear with two cubs was pursued by sailors over an ice field. She urged her cubs forward by running before them, and as it were, begging them to come on. At last in dread of their capture she pushed, then carried and pitched each before her, until they actually escaped. The polar bear is a wonderful swimmer and diver. In the capture of seals lying on the ice, it dives some distance off and swimming underneath the water, suddenly comes up close to the seals, cutting off their retreat to the sea.

Shark Story.—The son of a governor of Indiana was first officer on an Oriental steamer. While in the Indian Ocean the boat was overtaken by a typhoon and was violently tossed about. The officer was suddenly thrown overboard. A life preserver was thrown to him, but, on account of the heavy sea, difficulty was encountered in launching a boat. The crew, however, rushed to the side of the vessel to keep him in sight, but before their shuddering eyes the unlucky young man was grasped by one of the sharks encircling the steamer and was drawn under the water, leaving only a dark streak of blood. (Adapted from Ziehen.)

Good Girl Story.—Once upon a time there was a girl, whose father and mother were dead, and who was so poor that finally she had nothing but the clothes on her back and a little piece of bread in her hand. She was deserted by everybody, but since she was good and honest she went into the world with confidence in God. As she went along she was met by a poor old man who said, "Give me something to eat, I am hungry." The girl gave him the piece of bread and went on further. Soon afterwards she encountered a little girl freezing and almost naked, who begged for clothes. The good girl gave the poor child the warmest of her garments. Night came on, the good girl was tired, cold and hungry. She traveled into the woods, and, wandering off the road, she knelt and prayed to God. As she knelt she saw the stars falling all about her, and when she

looked she found they were many bright gold dollars. (Adapted from Ziehen.)

Objects.—The ability to repeat one of these stories shows in a rough way the power of attention, the quality of the interest, power of memory, the tendency to elaborate forgotten details, to elaborate the story with invented additions and their character, to lay stress upon the emotional elements, the ability or failure to see the point, etc., etc.

Show the patient for an instant one of the cards with collections of figures, letters, pictures, etc., such as are illustrated below, and have him tell you what is on the card, giving the content in full and the relative positions of the different elements.

The following apperception test may be used if it seems desirable. In this test the patient is given a sheet on which is printed an anecdote, story or description, but in which certain words are left blank. The patient is to be instructed to go over the paper carefully and after having once gone over it to fill in the spaces with words that will appropriately give the meaning to the story.

1. Once upon a time —— heard a —— chirruping in the ——. Ah, he said to himself, if I could —— like that, how —— I should be. So he bowed low to the ——, and said, kind friend, what —— do you eat to make your —— so sweet? I drink the evening dew, replied the ——. The foolish —— tried to live on the same ——, and died of ——.

2. Monkeys are —— and —— creatures when ——, but become —— and —— as they grow ——, especially the males. They pass most of their time in alternate —— and ——; after a violent —— they change to the other extreme, and behave as if they were the most —— of creatures. Animals at one moment living in perfect —— and —— become in an instant deadly ——, ready to —— each other to ——.

1 4 9	3 6 1 4
3 7 4 9 1 5	B N V
O T R C	HOUSE
GREEN TREE	DOG MOUSE CAT

3. During the early centuries of Christian Spain the conditions of the —— were such that every —— was obliged to defend his —— to the throne against the —— of his family, so that almost constant —— was being waged among the nearest kin and it was practically impossible that several —— of weak and incompetent —— should not have been wrested from the throne.

Attention:

Summarize the results of the observations made during the examination of the patient. Describe the character of any apparent attention disorder, and if possible give examples to show the character. In the summary try to differentiate between what is known as "distractibility," wandering attention, or the shifting of the attention to successive new impressions, and the lack of, or the fluctuations of the attention such as is found in senile and alcoholic (Korsakow's syndrome) conditions.

Should there be an apparent fluctuation of the attention try one of the following tests, to bring out the condition in a more graphic manner:

1. Read to the patient the following series of numbers at the rate of one each half second, or the series of letters in the same way and have him tap with a pencil each time the number 6 or the letter C is read as the case may be.

4 3 6 8 5 9 6 3 4 6 5 2 4 7 6 5 8 6 7 2
3 6 6 3 7 6 3 9 3 8 6 7 3 6 9 3 5 6 4 8
8 6 9 4 6 8 9 4 6 7 9 7 8 4 6 8 5 9 8 6
5 3 2 8 6 9 8 3 6 9 7 2 8 6 7 6 4 3 8 5
7 9 2 6 5 7 2 8 6 2 8 7 6 9 6 4 3 7 2 8

T C Q N D C B K C J C H A F L C O S M B
C R F K C L H D A C J Q S M T C C N F O
B J C M K R C T A H C D L Q C R N C O J
C A C F K O Q H C M L F D C S R C N T B
S F C T J L C H N A Q C R T C K C D B S

Note each time a letter or a number is not properly responded to, and see if there is a rhythm in the failure to make the response.

2. Have the patient tap on the tapping apparatus, which is a mechanical counter, for thirty seconds and record the number of taps that he makes in different periods of five seconds.

Or, have him make taps on a sheet of paper to and fro for thirty seconds, and note how long it takes him to tap along one line.

Or, have him make the taps in the squares of a sheet of cross section paper (having each square about half an inch wide), noting how long it takes him to make the successive ten taps, in the total series of 100 taps.

Memory:

Summarize the results of the questions which indicate the memory grasp of the patient. Include under separate headings accounts of the following:

1. Recent and remote events.
2. Names of persons, including members of his family, the physicians, nurses and attendants, and other parties.
3. Date and time.
4. Places.

Should there appear to be any memory defect try the following tests:

1. Have the patient read aloud a number of four digits, or read the number to him, speaking each digit separately. This will give respectively the visual and the auditory memories.

5632	9764	3521
8629	5941	7368
6214	9826	5327

2. If the patient can retain all of the four digits try him with the six or eight digit combinations.

487631	736491	571924
955217	972864	249837
276384	845193	516724
45319628	19362874	29317586
35984271	92576438	83264519
97125684	63258914	87635219

3. Give combinations of three associated words and have the patient repeat them after you as well as he can.

   Cloak, hat, and gloves.
   Enemy, battle, and peace.
   Station, train, and conductor.
   Deer, horn, and hoof.
   Wall, brick, and ivy.

4. Another test that may be tried is the use of two or more pairs of associated words of which the patient is to remember the second one of the pair. The pairs are read to the patient, he is required to repeat them, and after the series (which may be made up of two, three, four or more pairs) has been gone over he is given the first word of a pair and asked what word goes with it. The following pairs of words may be used in any combination of two, three, four, etc.

Well—pump.	Soap—towel.
Cent—dime.	Book—paper.
Roast—stew.	Child—doll.
Oak—pine.	Friend—companion.
Drug—medicine.	Bees—ants.
Game—sport.	Red—brown.
Bridge—river.	Law—judge.
Dust—sand.	Duck—water.
Thumb—toe.	Square—round.
Cow—horse.	Face—beard.
Water—ice.	Actor—theater.
Barrel—bottle.	Glove—hand.
Porch—chair.	Potatoes—fish.
Glue—wood.	Stone—earth.
Street—house.	Tea—sugar.

5. Have the subject repeat the following, and record exactly what he says:

   The alphabet.
   The names of the months.
   The days of the week.
   The names of the seasons.
   The Lord's prayer.

6. Examine the patient in regard to his memory of school subjects, especially geography and history.

Which is the longest river in the U. S.?

What is the capital of the U. S.?

Name some of the most important countries in Europe.

Name the largest cities in the U. S. and in the different countries of Europe.

Give the dates of the most important wars of the United States, and with what countries they were fought.

Name some of the most noted presidents, etc., etc.

7. In addition to the anecdotes that were used in the apperception and apprehension tests, which give a good idea of the memory grasp, have the subject give the substance of one or more of the following sentences or anecdotes:

The game of base-ball is fast taking hold of the people of Canada, who hitherto have been satisfied with the English games of cricket and foot-ball.

The Hindoos believe that the gradual darkening of the sun during an eclipse means that the jaws of a dragon are gradually eating it up.

Without map or compass the swallows come back each year to the places that have previously sheltered them.

The advocates of universal peace will go to all sorts of extremes to get their views accepted, for they will fight those who dare to disagree with them.

Pen, ink, pencil and paper have been the most potent factors in the advancement of the world in every way.

Association:

The associations of the patient may be determined from the general examination, from the accounts of the

stories used in the tests of apperception and apprehension, especially the test of filling in the blank spaces on p. 331, from the mistakes made in answer to the memory tests on pp. 322, 323 and 324. For more extensive tests the following series of words may be used. The patient should be instructed to say the first word or idea that comes into his mind when he hears a test word that is given him. It is advisable often to make note of the time between the giving of the test word and the response of the patient. This can be obtained with sufficient accuracy by observing the second hand of a watch at the time of the experiment. In this work it is very important that the replies of the patient be recorded exactly as they are given. If there seems to be no apparent connection between the association of the patient and the test word that has been given to him, try to get him to trace for you the connection that has gone on in his mind; for example, should you give him the word "apple" and he replied "foot," the connection is not one that can readily be recognized, but if on questioning you find that the word "apple" suggested to him a time when he was under an apple tree and he walked on a number of rotting apples with his bare feet, the association is more easily understood.

1. White. Red. Gray. Dark. Light.
2. Pain. Rest. Cold. Sweet. Beautiful.
3. Head. Poor. Man. King. Hair.
4. Chair. Bed. House. Lamp. Stairs.
5. Mountain. River. Sea. Sun. Star.
6. Tree, Leaf. Grass. Bush. Flower.
7. Luck. Sick. Hate. Fear. Right.

Determination of Submerged Complexes:

The method of procedure is to take a list of words, from one to two hundred, and then while reading the words to the patient, he having been told to tell immediately what comes into his mind after hearing the word, record the time taken in forming the association. The most practical way for recording the time is by a stop-watch graduated to fifths of a second. After the list has been completed it may be repeated

in the same way, the patient being asked, however, to give the same associations he did the first time if he can recall them. The time need not be recorded for the repetition.

When one of the words in the list touches a complex, is a complex indicator, marked disturbances in association are noted. These disturbances are: (1) Increased length of reaction time; (2) superficiality of the association; (3) forgetting of the association on repetition; (4) peculiarity of the type of reaction, *i.e.*, the association may have some direct association with the complex but no apparent association with the word given; (5) the irradiation of the disturbance to the next one or two associations. Other disturbances occur, but these are the principal ones.

The following shows some of the disturbances. The patient was suicidal, having made several attempts at self-destruction. Her average reaction time was about 1.6 sec.

Stimulus word.	*Reaction.*	*Time.*	*Reproduction.*
To harm	self	6.6	any one
stork	large	4.4	large
false	true	1.8	not true

In this example the extreme length of reaction time is shown (6.6 sec.), inability to recall the reaction on repetition, and irradiation of the disturbance to the next two reactions as shown by their increased length.

The same patient had been made very unhappy on one occasion by the arrest of her brother, his arraignment in court, and the necessity of giving bond for him. Note the following reactions: prison—cell—4.2 sec.; barn (understood as *bond*) —pay—4.6 sec.; judge—to be judged—4 sec.

The following words may be used, interspersing words here and there, if thought desirable, which are believed to have special significance.

1 Head:	9 Wool:	17 Proud:
2 Green:	10 Friendly:	18 To boil:
3 Water:	11 Table:	19 Ink:
4 To prick:	12 To carry:	20 Angry:
5 Angel:	13 Insolent:	21 Needle:
6 Long:	14 To dance:	22 To swim:
7 Ship:	15 Lake:	23 Journey:
8 To plough:	16 Sick:	24 Blue:

25 Bread:
26 To threaten:
27 Rich:
28 Lamp:
29 Tree:
30 To sing:
31 Sympathy:
32 Yellow:
33 Mountain:
34 To play:
35 Sail:
36 New:
37 Custom:
38 To ride:
39 Wall:
40 Stupid:
41 Volume:
42 To despise:
43 Teeth:
44 Correct:
45 Crowd:
46 Book:
47 Unjust:
48 Frog:
49 To cut:
50 Hunger:
51 White:
52 Ring:
53 To listen:
54 Pencil:
55 Woods:
56 Apple:
57 To meet:
58 Law:
59 Love:
60 Glass:
61 To quarrel:
62 Goat:
63 Large:
64 Potato:
65 To paint:
66 Part:
67 Old:
68 Flower:
69 To strike:
70 Box:
71 Wild:
72 Bright:
73 Family:
74 To wash:
75 Cow:
76 Stranger:
77 Luck:
78 To tell:
79 Hesitation:
80 Narrow:
81 Brother:
82 To harm:
83 Stork:
84 False:
85 Anxiety:
86 To kiss:
87 Fire:
88 Dirty:
89 Door:
90 To choose:
91 Hay:
92 Quiet:
93 Scorn:
94 To sleep:
95 Month:
96 Colored:
97 Dog:
98 To talk:
99 Carriage:
100 Sky:
101 Straw:
102 Baby:
103 To lie:
104 Blood:
105 Duty:
106 Bed:
107 To rent:
108 Sorrow:
109 Mirror:
110 Judge:
111 Knee:
112 To live:
113 Change:
114 Barn:
115 Snake:
116 To uncover:
117 Policeman:
118 Wagon:
119 Judge:
120 Night:

Thinking:

In a previous section the patient has described his feelings regarding his ability to think properly and easily. These feelings may or may not correspond to the actual state of affairs. There may be a feeling of ability without the ability of performance, and there may be the feeling of inability without any actual change in the real ability. The calculation tests of age, date of birth, etc., may be used to get some idea of the ability of the patient to think well, but these figures are so often used that it is not necessarily true that if he gives them correctly he retains his normal

thinking ability. For further testing the following calculations are easy tests to apply.

Addition.

Add 73 and 22
Add 90 and 18
Add 84 and 25
Add 106 and 17
Add 137 and 64

Subtraction.

Subtract 7 from 63
Subtract 16 from 192
Subtract 24 from 87
Subtract 35 from 257
Subtract 19 from 96

Division.

Divide 63 by 7
Divide 45 by 5
Divide 132 by 11
Divide 192 by 16
Divide 15 by 3

Multiplication.

Multiply 7 by 9
Multiply 9 by 13
Multiply 12 by 15
Multiply 14 by 11
Multiply 8 by 13

In cases in which it is possible to give the following logical tests, these may very well be used to determine any defect in thinking. The patient is to be instructed to read carefully the passages which are given on the sheet, and to say whether or not the conclusion of each of them is correct. No attempt need be made to get him to name or to correct the logical errors, but if the corrections are volunteered they should be noted.

1. All roses are beautiful; lilies are not roses; therefore lilies are not beautiful.

2. Nothing is better than wisdom; dry bread is better than nothing; therefore dry bread is better than wisdom.
3. None but savages were in America when it was discovered; Hottentots are savages, and must, therefore, have been in America when it was discovered.
4. Repentance is a good quality; wicked men abound in repentance, and, therefore, abound in what is good.
5. The object of war is durable peace; therefore soldiers are the best peacemakers.
6. No soldiers should be brought into the field who are not well qualified to perform their duty; none but veterans are well qualified to perform their part, and, therefore, none but veterans should be brought into the field.

Ethical Questions.

If you saw a man drop a $10 bill on the sidewalk, what would you do?

What do you understand is the difference between right and wrong?

Why is it wrong to steal?

Examination of Stuporous Cases.

General attitude:

Position of body:
sitting.
lying—on back, side, face.

Disposition of limbs.

Evidences of paralysis—hemiplegia, facial, ocular?

Voluntary musculature—flaccid, contractured?

Evidences of catatonic rigidity?

Tremors.

Face:

Expression—changeable or fixed, mask-like, pained?

Grimacing—Schnauzkrampf?

Position of eye-balls—rolled up under lid?

Reflexes:

Superficial and deep. Compare two sides.
Pupillary.
Winking.
Tickling.

Reactions:

Can the patient be brought to maintain a position requiring volitional control?
Does the patient voluntarily correct uncomfortable positions?
Does the patient show any emotional (expressive vasomotor, circulatory, respiratory) response to bad news, jokes?
Do patient's eyes follow examiner?
Does patient take food?
Are his actions the same when apparently not observed as when under observation?
Does patient respond to calls of nature?
Does he retain saliva? Drooling?
Are there any spontaneous acts? Why?

Objects.—Having envisaged the individual from every point of view it is valuable to summarize the findings and desirable, if possible, to give a name to the psychosis. It must always be borne in mind, however, that naming is merely for convenience of designating the group to which the condition belongs. Names too frequently become obsessions and naming an end. The essential thing is that the psychosis should have been explained, its meaning reached by an uncovering of the mechanisms involved.

CHAPTER XX.

The Kuhlmann and Binet-Simon Tests.[1]

The object of the Binet-Simon tests is to determine the psychological age of the child. Their use has produced already a large and critical literature. No attempt will be made here to discuss the merits of the many questions that have been raised. The important point is that this scale, in skilled hands, is a useful tool for determining the mental development of the child. No set of tests can be applied in a purely automatic way nor will such tests in any way take the place of knowledge and experience on the part of the examiner. In the most skillful hands the results, expressed in terms of psychological age, are but rough approximations and after all tell little of value from the point of view of understanding the patient. It has been well said that if a group of children were examined and classified according to their psychological age that the only characteristic that members of a given age group would have in common would be that they had all measured up to the same age according to the tests. It has also been well said that the only way to tell whether a person is feeble-minded or not is to live with him for six months. Reactions to life situations are immensely more valuable and illuminating than reactions to psychological tests.

[1] "*Intelligence Tests:* The last two decades have seen the development of the so-called tests or scales for the measurement of intelligence. Originating in France with Binet and Simon, who devised a method of ranking school children according to what they actually knew or could do at each age-level from 3 to 12 or 15, the movement has spread and developed until we now have a bewildering variety of tests, designed to measure many different aspects of mental life. Tests of special abilities and disabilities, of school acquirements and occupational fitness, character tests and tests of the emotions, have flooded the market. Some of them have been in use long enough to prove their value, others are still frankly experimental. Perhaps the line of attack that promises most is the study of infancy and early childhood, which is being carried forward by workers like Gesell at Yale, Thom in Boston, Baldwin at the University of Iowa, and Mrs. Woolley in Detroit.

"Though valuable for research and for statistical purposes, very few of these scales are sufficiently refined to be of much value to the psychiatrist.

Porteus[2] well says, "The attempt to fix definite age limits of normality was certainly justified. But the proposed twelve-year Binet age level was a sieve with a mesh so small that, although the sorting out of the defectives proved to be a beautifully simple matter, it unfortunately segregated also great numbers of normal individuals. Unhappily for other theories, a nine- or ten-year Binet age is a measure so wide that it allows too many defectives to slip through. That the attempt to evolve a psychological definition without reference to a social criterion has failed is almost a tragedy."

The Binet-Simon scale is given below as it is the basic series of tests out of which other schemes have grown. One of the most used scales at the present time is the Stanford revision of the Binet-Simon scale,[3] which is a further elaboration and modification of it. The revision, among other things, consists in adding certain tests and relocating some of the other tests. The result of these tests is best expressed as the intelligence quotient (I.Q.) because if expressed as mental age alone it does not express the significance of a given number of years of retardation or acceleration which depends upon the age of the child. For example, if a child were 50 months old and passed 40 months tests the intelligence quotient

"Psychotic patients are notoriously difficult to study with a test technique. In different stages of mental disease the test picture is very variable, and may tell us little or nothing about the patient's original equipment. Feeble-minded patients are, of course, much easier to study and the test results are more reliable. Students should be warned against placing too much faith in mental ages and intelligence quotients, especially of psychotic patients. However, an estimation of intelligence, either of original endowment or of the amount capable of function at any given stage in a patient's career, is very important. For the purposes of a mental examination, the Binet-Simon test, series of 1911, is probably as good as any other. It has the advantage of being short and easily applied, and is well standardized up to year 12. Of the revisions of this scale the Stanford, devised and standardized at Stanford University from 1912 to 1916, is the most widely used. It requires, however, considerable time and a special technique. For low-grade and greatly deteriorated patients, the test most commonly used is the Kuhlmann-Binet, originally worked out by Kuhlmann in the Minnesota State Colony for Defectives and Epileptics." (Dr. Winifred V. Richmond.)

[2] Cited by Davies: Social Control of the Feebleminded.

[3] M. Terman: The Measurement of Intelligence, published by Houghton Mifflin Company.

would be 80. The scheme of classification on this basis would be as follows:

I.Q	*Classification*
Above 140.....	" Near " genius or genius.
120–140.....	Very superior intelligence.
110–120.....	Superior intelligence.
90–110.....	Normal, or average, intelligence.
80– 90.....	Dullness, rarely classifiable as feeble-mindedness.
70– 80.....	Border-line deficiency, sometimes classifiable as dullness, often as feeble-mindedness.
Below 70.....	Definite feeble-mindedness.

As compared with the other scheme of classification already given (p. 345), the morons would come between 50 and 70 *I.Q.*, the imbeciles between 20 or 25 and 50, and the idiots below 20 or 25. This is only roughly approximate.

We must bear in mind in this matter of psychological age a fact which is quite generally overlooked; namely, that the general intelligence measured by these tests probably does not develop much beyond sixteen years of age, therefore a mental age of thirteen, fourteen or fifteen on a scale the upper limit of which is sixteen is not as great a deficiency as it is generally supposed to be apart from this idea of its relative position on the scale.[4]

Another and also very popular method of measurement and computing results is the Yerkes-Bridges point scale method, which computes the results of the tests on a percentile basis.[5]

The Binet-Simon tests will be given as modified to suit American Children by GODDARD, who has probably had more extensive experience in its use than anyone else in this country.

All the questions under an age must be answered to pass that age.

The tests are as follows:

[4] Davis. *Loc. cit.*

[5] Yerkes, Bridges and Hardwick: Point Scale for Measuring Mental Ability, published by Warwick & York, Baltimore, Md.

KUHLMANN TESTS FOR THE FIRST TWO YEARS.[6]

Age: Three Months.

1. Carrying hand or object to mouth.
   (a) To suck finger.
   (b) Small block in right and left hands.
2. Reactions to sudden start. Telegraph key or hand clap.
3. Binocular coördination. Lighted candle side to side, up and down.
4. Turning eyes towards light in marginal field of vision. Light brought to side from rear.
5. Winking to an object threatening the eyes. Faint blow with large object near eyes.

Age: Six Months.

1. Balancing head. Is head balanced when subject is in vertical position?
   (a) Sitting. Indefinitely when supported; momentarily when not supported.
2. Turning head toward source of sound. Bell or voice.
3. Opposing thumb in grasping. Try to raise thumb when subject is grasping small block or pencil.
4. Prolonged holding of objects placed in hand. Inch ball or cube.
5. Reaching for seen objects.

Age: One Year.

1. Sitting and standing. On stool without back, standing on floor away from support.
2. Speech. (a) Spontaneous vocalization; (b) repeats or tries to imitate syllables of ba, dada, nan, nana, mama, papa, man.
3. Imitations of movements. (a) Shake and then give rattle, (b) hand-bell, (c) nod head, shake head, pursing lips.
4. Marking with pencil, (a) with instruction, (b) without.
5. Recognition of objects. Present known object, changing hand held in.

Age: Two Years.

1. Distinguishes candy from wood.
2. Pointing out objects in picture.

[6] Kuhlmann, F.: A Revision of the Binet-Simon System for Measuring the Intelligence of Children. Journal of Psycho-Asthenics, Vol. I, No. 1, September 1912, Monograph Supplement.

3. Imitation of simple movements. (a) Raise arms; (b) clap hands; (c) palms on head; (d) turn hands about each other.
4. Obeying simple commands. (a) Go and bring the ball; (b) throw the ball; (c) place it here.
5. Copying circle.
6. Removal of wrapping of food before eating.

BINET-SIMON TESTS

CHILDREN OF THREE YEARS.

1. WHERE IS YOUR NOSE? YOUR EYES? YOUR MOUTH?

One of the best signs of awakening intelligence in young children is the comprehension of spoken words. We test this by asking these questions which can be answered by a gesture.

2. REPETITION OF SENTENCES OF SIX SYLLABLES.

It rains. I am hungry (6 syllables).

Experiment proves that it is easier for a child to repeat words than to speak a word of his own. If a child does not respond one way try with two syllables (*"mama"*), then four, etc.

A child of three repeats six syllables but not ten. There must not be a single error.

3. REPETITION OF FIGURES "*7, 2.*"

A child of three can repeat two figures. Figures require closer attention than words because they mean nothing to him. Pronounce the figures distinctly, one-half second apart and without emphasis on any one figure.

4. DESCRIBING PICTURES.

A picture is shown to the child with the question, "*What do you see?*" The picture must be chosen with some care. Each one must represent some *people* and *a situation*. Binet uses three pictures. The first is a man and a boy drawing a cart loaded with furniture. The second, a woman and an old man sitting on a bench in a park in winter. The third, a man in prison looking out of the window; a couch, chair and tables.

A child of three names the things—enumerates. He does not describe any actions in the pictures.

5. NAMES OF THE FAMILY.

All children of three know their *first* names. They sometimes know the *family* name but not always.

CHILDREN OF FOUR YEARS.

1. Sex of Child. *Are you a little boy or a little girl?*
Children of three do not know. Children of four always do.

2. Naming Familiar Objects.
One takes from his pocket *a key, a knife* and *a penny.*
The answers should indicate that the child knows what each is. This is a more difficult use of language that naming objects in the picture because there the child chooses his own object to name; here we say, *"what is that thing?"*

3. Repetition of Three Figures. "7, 4, 8."

4. Comparison of Two Lines. *"Which is the longer line?"*
Draw two parallel lines three centimeters apart, the one 5 centimeters and the other 6. Hesitation is failure.

CHILDREN OF FIVE YEARS.

1. Comparsion of Two Weights. *"Which is the heavier?"*
Use weighted blocks of wood of equal size and appearance. Compare 3 grammes with 12 grammes and 6 grammes with 15 grammes. Note the curious and interesting errors that are made.

2. Copying a Square.
Draw a square of 3 or 4 centimeters. Have child copy it with ink—not pencil. Pen makes it harder. It is satisfactory if one can recognize the square.

3. Repeat: *His name is John. He is a very good boy.*

4. Counting Four Pennies.
Place four pennies in a row. Insist that child count them with his finger.
At three years a child does not know how to count four: at four half succeed: at five all succeed.

5. Game of Patience With Two Pieces.
Cut a visiting card diagonally. Place a whole card on the table. Nearer the child place the two pieces with the two hypothenuses away from each other. Ask the child to make a figure like the uncut card. One child in twelve fails.
Be careful (1) that child does not fail because he is too indolent to reach out and try; (2) that one of the pieces does not get turned over—because then it is impossible; (3) that you do not show by a look whether the child is right or wrong.

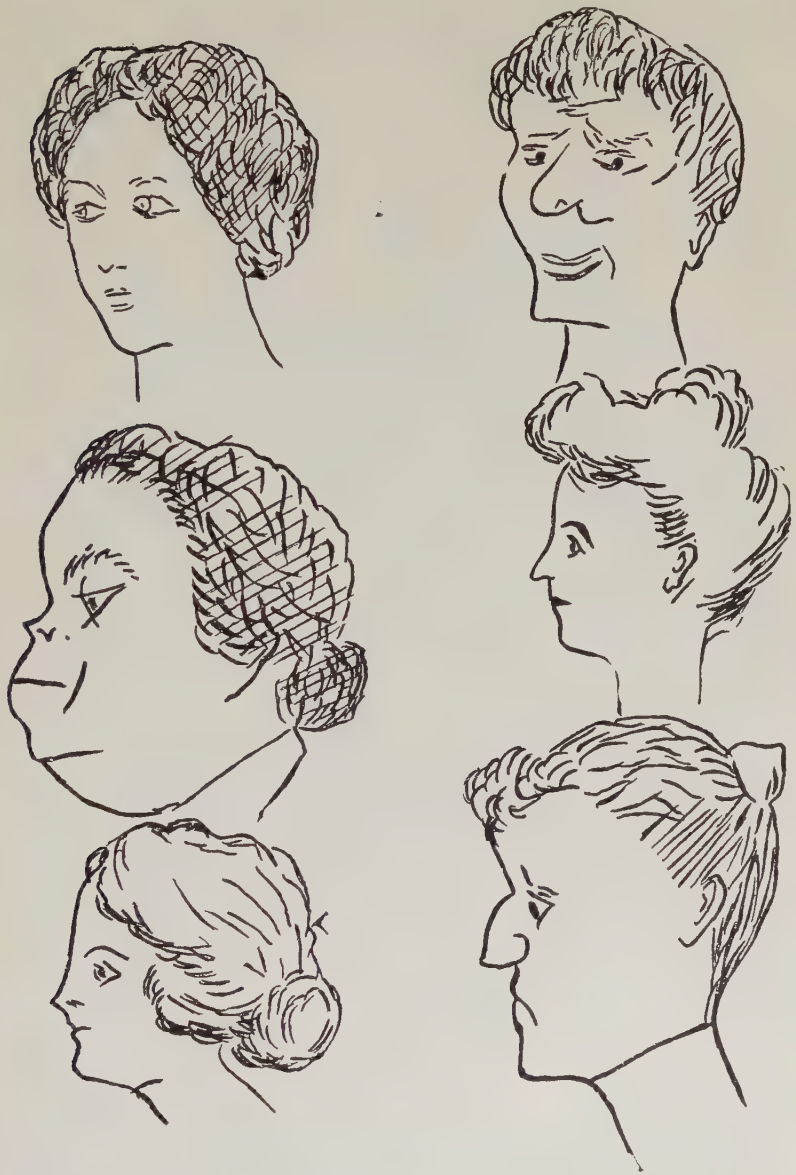


FIG. 5. BINET TEST AGE VI. No. 5.

CHILDREN OF SIX YEARS.

1. Distinction Between Morning and Afternoon. *"Is this morning or is it afternoon?"*

It should be remembered that a certain type of child will always answer the *latter* of two alternatives. Therefore if the time is afternoon it is well to put the question, *"Is this afternoon or morning?"* Not before six do children know this.

2. Definition of Known Objects. *"What is a fork? a table? a chair? a horse? a mama?"*

There are three kinds of response. (1) Silence, simple repetition or gesture; *e. g.*, *"A fork is a fork,"* or pointing says, *"That is a chair."* (3) Definition in terms of use, *"A fork is to eat with."* (3) Definitions *better* than by use. This includes all answers that describe the thing or even begin with *"it is a thing"*—*"It is an animal,"* etc., all of which expressions are not so childlike as the simple *"use"* definitions. In deciding which type of answer we shall credit to the child, we accept three out of five.

At four years half the children define by *"use"*; it increases a little at five and at six practically all define this way. Not before nine do the majority give the definitions that are *"better than by use."*

3. Execution of Three Simultaneous Commissions.

"Do you see this key? Put it on that chair. Then shut the door. After that bring me the box that is on the chair. Remember, first the key on the chair, then close the door, then bring in the box. Do you understand? Well, then, go ahead."

Such are the directions. They must all be done without further help, hint or suggestion. At four years almost none can do this; at five about half, at six all, or nearly all, succeed.

4. Right Hand. Left Ear.

One says to child, *"Show me your right hand,"* and when that is done, *"Show me your left ear."* There are, in the main, three kinds of response. (1) Does not know right and left. Shows right hand because of natural tendency. Shows right ear also. (2) Knows but is not sure. Shows right hand, then right ear, but corrects himself at once. (3) Knows and without hesitation touches right hand and left ear. (2) and (3) are considered satisfactory. If child touches one hand with the other in such a way

that one cannot tell which hand he means, ask him to hold his right hand up high. Be very careful in this test to give no hint by look or word. At four years no child points to left ear; at five half of the children make a mistake; at six all succeed.

5. Esthetic Comparison.

"Which is the prettier?"

Binet uses six heads of women in three pairs, the one pretty and the other ugly or even deformed, Fig. 5. Care is taken that the pretty one is now at the left and now at the right. At six all choose correctly; at five about half.

CHILDREN OF SEVEN YEARS.

1. Counting Thirteen Pennies.

Pennies must be placed in a row and counted with the finger. Finger must touch the piece at the same time that the child names the number. No piece must be counted twice and none omitted. The number thirteen must be given exact. At six years two-thirds fail; at seven they make no errors.

2. Description of a Picture.

Same picture as used in age three. Child now *describes* things instead of simply enumerating.

3. Unfinished Pictures.

One shows four sketches of such as Fig. 6. Ask the child, *"What is lacking in that picture?"* Child must answer three out of four correctly. At five years none are correct; at six errors number two-thirds; at seven the great majority are accurate.

4. Copying a Diamond.

Draw a rhombus about the size of the square used for age five. Have child copy this with pen. The result is satisfactory if it would be recognized as intended for a diamond shaped figure.

5. Name Four Colors.

Use red, blue, green and yellow papers, in pieces about 1 x 3 inches. Touching each color with the finger ask, *"What is that color?"* It will be seen this is a test of color names, not of discrimination. It should be done in six seconds.

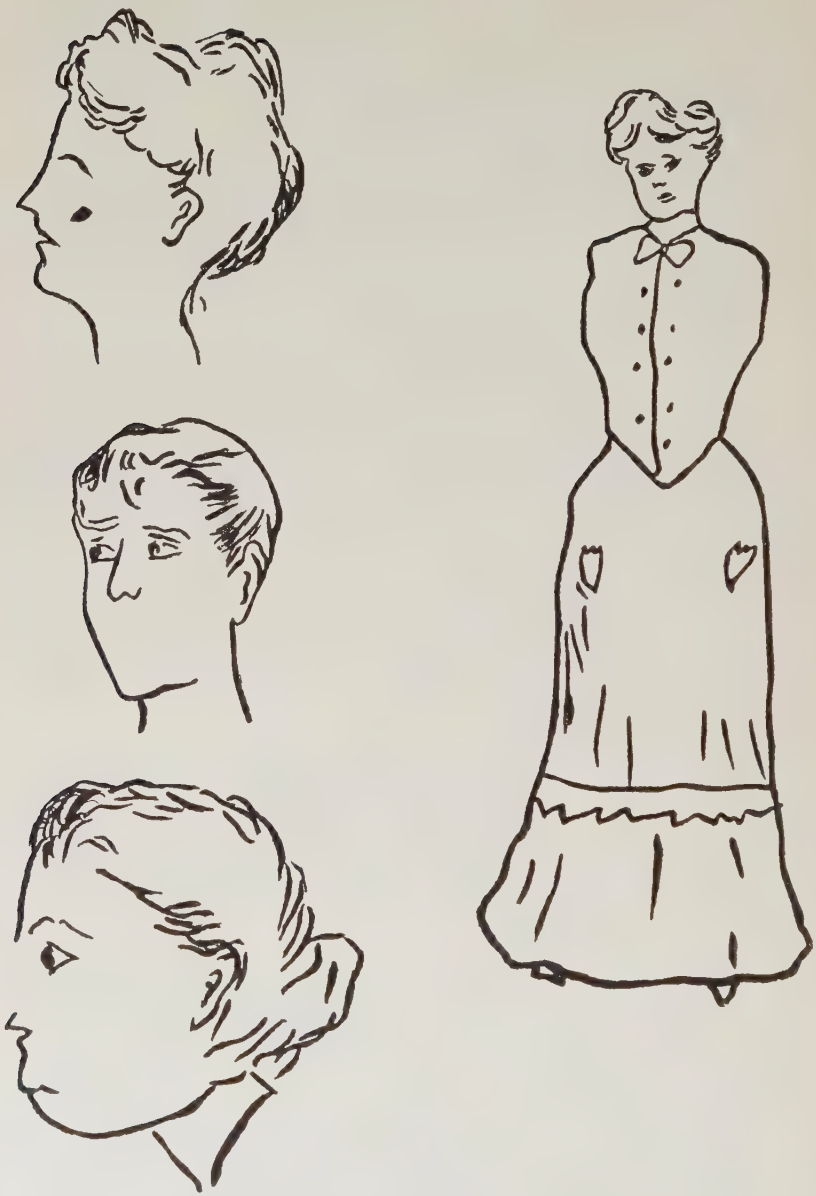


Fig. 6. Binet Test Age VII. No. 3.

CHILDREN OF EIGHT YEARS.

1. Compare Two Things From Memory.

"What is the difference between a butterfly and a fly?" "Wood and glass?" "Paper and pasteboard (or cloth)?"

The question may be differently put so as to make it intelligible as possible; *e. g.*, *"Why are they not alike?"* etc.

Two at least out of the three pairs should be answered correctly. If it takes more than two minutes it is a failure.

At six a third of the children do this test; at seven nearly all; at eight all.

2. Count Backwards From 20 to 1.

This should be done within twenty seconds, and only one mistake allowed of omission or transposition.

3. The Days of the Week.

These must be given in order without omission within ten seconds.

4. Count Nine "Sous" (3 Simples and 3 Doubles).

(Our two-cent piece is now so rare that we use one-cent and two-cent postage stamps.) Arrange in order, 1, 1, 1, 2, 2, 2. *"How much are they worth?"* (*"How much money to buy them?"*) *"Count."*

It should be done within ten seconds without any error. There are three ways of counting. One child says 1, 2, 3, 5, 7, 9. Another says 1, 2, 3, 4–5, 6–7, 8–9. The third says 1, 2, 3, 4, 5, 6, which is of course wrong. A large majority do this test at seven years. But all do it at eight.

5. Repetition of Five Figures. "4–7–3–9–5."

Same method of procedure as given above, age three. Only three-fourths of the children succeed.

CHILDREN OF NINE YEARS.

1. Make Change—4 Cents Out of 20.

Play store, using real money.

If child's cash consists of 20 pennies, 4 nickels, and 2 dimes, interesting degrees of intelligence will be discovered by noticing the coins he uses in making change. Child is storekeeper. One buys something that costs 9 cents. Child must actually give 16 cents as well as say it.

At seven no one can do this test; at eight a good third succeed; at nine all do it.

2. Definition Better than by "Use."

This was explained under age six. Accept any definition that is more than simply "use," *e. g.,* chair has four legs, table is made of wood, etc. At ages seven and eight, half the children give definitions of this kind; at nine they all do.

3. Name the Day of the Week, the Month, the Day of the Month and the Year.

The test is passed even if the day of the month is as much as three days wrong. Children least often know the year.

4. The Months of the Year.

Recited in order within fifteen seconds. Allow one omission or transposition.

5. Arrangement of Weights.

Use five wooden cubes of same size and appearance but loaded so as to weigh 6, 9, 12, 15, 18 grammes. (Metal pill boxes may be used.) Place the five boxes on table in front of child and explain that they do not all weigh alike and he is to lift one at a time and put them in order from the lightest to the heaviest. (The initial of each weight written on the bottom of each box makes it easy to see if they are right.) Record the exact order in which the child has placed them. Three trials are made. Two must be absolutely correct. The whole operation must not take over three minutes.

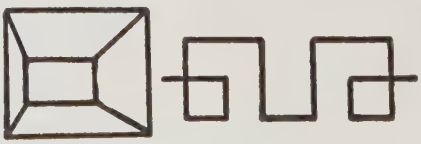
CHILDREN OF TEN YEARS.

1. Naming Nine Pieces of Money.

One may use cent, nickel, dime, quarter, half dollar, dollar, two dollars, five dollars, and ten dollars.

Pieces should be on table in a row but not in regular order of value. Point with finger, and name as he points.

2. Copy Design.



Expose ten seconds.

3. Repeats Six Figures.

854726, 274681, 941738.

4. Questions of Comprehension. First Series.

What ought one to do

1. When one has missed the train?

2. When one has been struck by a playmate who did not do it purposely?

3. When one has broken something that does not belong to one?

At seven and eight half respond correctly; at nine three-fourths; at ten all. If two questions out of three are answered correctly the test is passed.

Second Series.

What ought one to do

1. When he is detained so that he will be late for school?

2. What ought one to do before taking part in an important affair?

3. Why does one excuse a wrong act committed in anger more easily than a wrong act committed without anger?

4. What should one do when asked his opinion of some one whom he knows only a little?

5. Why ought one to judge a person more by his acts than by his words?

Allow at least 20 seconds to each question. Three of the five must be answered correctly. At seven and eight no one responds to a majority of his second series; at ten half are successful; it is therefore a transition between ten and eleven years.

5. Using Three Words in a Sentence.

Binet uses the words *Paris, fortune, river.* We should say *Philadelphia, money, river.* This is the first time in these tests that we have required the child to "invent" his own expression. There are three forms of answers. (1) Three separate sentences. (2) Two ideas united by a conjunction. (3) A single idea involving the three words. Only the last two are satisfactory for the test. We allow one minute. At eight no one succeeds. At nine one-third and at ten one-half get it right.

In this test may be seen a distinction between intelligence and judgment. Some children give a complete sentence with the three words but they do not make sense.

CHILDREN OF ELEVEN YEARS.

1. Criticism of Sentences.

These are sentences that contain some absurdity or ridiculous

expression. Binet explains that formerly he used sentences like *"Is snow red or black?"* but he found that many bright children fell into the trap and others through confidence in the questioner failed to look for an absurdity. Therefore he has changed the plan and now says to the child, *"I am going to give you some sentences in which there is nonsense. You listen carefully and see if you can tell me where the nonsense is."* Then he reads the sentence very slowly.

These are the sentences:

1. *An unfortunate cyclist has had his head broken and is dead from the fall; they have taken him to the hospital and they do not think that he will recover.*

2. *I have three brothers, Paul, Ernest and myself.*

3. *The police found yesterday the body of a young girl cut into eighteen pieces. They believe that she killed herself.*

4. *Yesterday there was an accident on the railroad. But it was not serious; the number of deaths is only 48.*

5. *Some one said "If in a moment of despair I should commit suicide, I should not choose Friday, because Friday is an unlucky day and it would bring me ill luck."*

The test should last about two minutes. Three at least of the questions should receive good answers. At nine years hardly any child gets them; at ten scarcely a fourth; at eleven a half.

2. Three Words in a Sentence. (Given under age ten.)

At eleven all succeed.

3. 60 Words in 3 Minutes.

"Say as many words as you can in 3 minutes; as table, board, beard, shirt, carriage." We tell him that some children have named 200 words.

This test gives a splendid opportunity to appreciate the intelligence of a child. A least 60 words must be given.

4. Rhymes.

Explain what is meant by one word rhyming with another. Illustrate. Then ask for as many words as the child can think of, that rhyme with a given word, *e. g., day* or *spring* or *mill.*

One minute is allowed. Three rhymes with one word should be found in the given time.

5. Words to Put in Order.

"Make a sentence out of these words."

Hour—for—we—good—at—park—a—started—the.

To—asked—exercise—my—have—teacher—correct—my—I.

A—defends—dog—good—his—courageously—master.

Place the printed words before the child. He gives the sentence orally.

Time limit is one minute for each sentence. At least two must be given correctly.

CHILDREN OF TWELVE YEARS.

1. Repetition of Seven Figures. 2, 9, 4, 6, 3, 7, 5. 1, 6, 9, 5, 8, 4, 7. 9, 2, 8, 5, 1, 6, 4.

Tell the child there will be seven figures. Give three trials. One success is sufficient.

2. Abstract Definitions.

"What is charity? justice? goodness?"

Two good definitions must be given. It is often somewhat difficult to decide if the definition is passable. If it contains the essential idea it must be accepted however badly it is expressed. At ten years a third succeed; at eleven they are generally successful.

3. Repeats.

I saw in the street a pretty little dog. He had curly hair, short legs and a long tail.

4. Resists Suggestion.

Binet's description of this test is as follows:

Prepare a little booklet of six pages. On first page draw in ink two lines horizontal: the one to the left two inches (4 cm.) long, the one to the right two and a half inches. On second page, left line is two and a half, right, three inches. Third page, left line three and right one three and a half inches. On three remaining pages all lines are three and a half inches long. The lines on each page are in same straight line and separated by a half inch.

The idea of the test is this: Child having said the right-hand one is longer for three times, will he continue even when he comes to those that are alike, or will he "resist the suggestion" and say they are alike?

Care must be exercised in asking the question. For the first two pages ask "Which is the longer line?" but for the others say merely. "And there?"

5. Problem of Various Facts. (*What is it?*)

"A person who was walking in the forest at Fontainebleau suddenly stopped much frightened and hastened to the nearest police and reported that he had seen hanging from the limb of a tree a ————————" (after a pause) *"what?"*

(2) *"My neighbor has been having strange visitors. He has received one after the other a physician, a lawyer and a clergyman. What has happened at the house of my neighbor?"*

Both questions should be answered correctly.

The answer to the first is *"a dead man."* Some object to this story as too gruesome. Others say that children are not so sensitive to such things as we think. Aside from that question it would seem that the picture is hardly familiar enough in America to make the answer certain. A substitute better be found.

CHILDREN OF FIFTEEN YEARS.

1. Interprets Picture.

1. Use same pictures as in age three, test four, and age seven, test two. The test is credited in XV if subject "interprets" the feeling of the picture—usually expressed by some word of sympathy, fear, sorrow, joy or other feeling.

2. Change Hands of Clock.

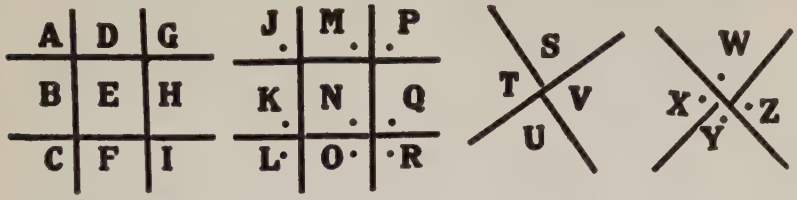
Interchange the hands of a clock for (1) the hour 6:20 and (2) 2:56. (Child must not see a watch or clock. It is a test of imaging power.)

3. Code. *Come quickly.*

This test was suggested by Dr. William Healy. It was used by the Southern army in the Civil War.

The diagrams shown below are to be constructed while the child gives close attention. He notes the arrangement of the letters, in alphabetical order vertically in first and second, and counter-clockwise in a third and fourth diagram. Two and four differ from one and three in having a dot in each section. Once knowing the scheme, the letters may be left out and a cipher dispatch written by using for each letter the part of the diagram in which the letter is placed in the key. For example "war" would be written

Having made it perfectly clear, remove the key and have child write on back of record sheet, "Caught a spy," in this code. In crediting allow one error. Every wrong or incomplete symbol is an error.



4. Opposites.

Ask child to write the opposites of the following words: (1) good; (2) outside; (3) quick; (4) tall; (5) big; (6) loud; (7) white; (8) light; (9) happy; (10) false; (11) like; (12) rich; (13) sick; (14) glad; (15) thin; (16) empty; (17) war; (18) many; (19) above; (20) friend.

Besides the obvious answers, the following are accepted as right or half right:

(2) in or indoors (half); (3) lazy or slowly (half); (4) little or low (half); (5) short (half); (6) soft or low (right), whisper (half); (9) sorry or sorrow (half); (10) right or truth (half); (11) dislike, unlike or hate (right); (13) healthy (right); (14) mad (right); (15) broad (half); (16) filled (right); (18) none (right); (19) under (right).

It is best to have the words printed on a slip of paper in vertical column, with space for child to write the "opposite" at the right.

The equivalent of 17 correct answers must be given.

ADULT.[7]

1. Cutting Out.

Get the child's attention and let him see you fold a sheet of paper in four. Then with the scissors cut a small triangle from one edge—the edge which does not open. Ask him to draw a picture of the paper as it will look when unfolded. Do not unfold or allow another sheet to be folded. It is a difficult test. If a child does it the first time always ask him if he has seen it before.

2. The Reversed Triangle.

Cut a visiting card along the diagonal. Ask child to describe the resulting shape if one of the triangles was turned about and

[7] Adult is used here in the sense of over fifteen years of age.

placed so that its short leg was on the other hypothenuse and its right angle at the smaller of the two acute angles.

3. Differences.

Ask the difference between

Pleasure and honor.
Evolution and revolution.
Event and advent.
Poverty and misery.
Pride and pretension.

4. Say to the subject: "There are three differences between the President of a Republic and a King. What are they?"

The answer should contain the three ideas, Royalty is (1) hereditary, (2) lasts for life, and (3) the monarch has extended powers. The President is (1) elected, (2) for a definite time, and (3) his powers are usually less extensive than those of a king.

5. Give Sense of a Selection Read.

Explain to the subject that you are about to read a selection to him, and that then you will ask him to tell you the substance of what you have read. He should give close attention.

Read slowly, in a clear voice and with expression, the following:

"One hears very different judgments on the value of life. Some say it is good, others say it is bad. It would be more correct to say that it is mediocre; because on the one hand it brings us less happiness than we want, while on the other hand the misfortunes it brings are less than others wish for us. It is the mediocrity of life that make it endurable; or still more, that keeps it from being positively unjust."

It is correct if the subject gives the central thought in his own words; *e. g.*, "Life is neither good nor bad, but mediocre, because it is inferior to what we wish and not as bad as others wish for us."

CHAPTER XXI.

Suggestions for Writing a Mental History.[1]

INSTRUCTIONS:

1. This form is not to be followed verbatim or used as a questionnaire. It is incomplete as it does not include many of the special methods that have been devised to make exhaustive studies in mental diseases, but it may serve the following purposes, (1) to stimulate and to direct the thoughts of the beginner along the important channels in mental history taking, (2) to serve as an orderly scheme for the examination of a mental case, and (3) to suggest and refer to the special factors to be investigated in such cases.

2. In making a history do not ask questions or follow suggestions that are not apropos to the case. Many of the suggestions offered in the present scheme will not apply in each individual case, but they are given to include as many phases of mental disorder as possible.

3. Always take particular care to give the source of information in all records pertaining to mental disorders.

4. Make brief but comprehensive summaries of the positive findings at the end of each general topic as indicated in the scheme, in a manner that will encourage their utilization in conferences, general routine, and for purposes of future investigation.

OUTLINE FOR PSYCHIATRIC EXAMINATIONS

Case Number

Date

Name
Organization
Admitted
Age
Nativity

[1] Prepared by Dr. N. D. C. Lewis, Chief of Division of Clinical Psychiatry, Saint Elizabeths Hospital.

Case Number

Date

Education
Social status
Occupation
Religion
Address
Legal residence

Medical Certificate: (To show authority and reasons for admission.)

A. Status on Admission: (A short description of the patient's general appearance and behavior—a statement of the problem as it appears at the time of admission. If physician did not see patient at this time, consult supervisor or nurse.)

B. Family History: Make as definite as possible and inquire particularly into such disorders as feeblemindedness, criminal constitutions, eccentricities, neuroses, chronic "invalidism," psychoses, convulsions, familial heredodegenerations, apoplexies and paralyses, syphilis, cancer, tuberculosis, heart disease, nephritis and diabetes. If a nervous or mental disorder has occurred in the immediate family obtain, if possible, some description of their behavior and its final outcome. (If there are a large number of the above mentioned types of disorders in a family the picture is better and more interestingly presented in heredity chart form—an excellent standardized form to follow may be found in "The Journal of Heredity," 1926, *17,* page 307.)

SUMMARY OF FAMILY HISTORY:

C. Personal History: After all the data has been collected from the patient, from relatives, and others, and through correspondence, arrange the essential facts that bear upon the disorder into narrative form and chronological order, giving actual dates wherever possible *and always recording source of information.*

1. Begin the biological study with locality, occupation of parents and place in the sequence of birth of children.
2. Record any severe infections, drug intoxications, prolonged exhaustive diseases or injuries to the mother during the gestation period.

3. Birth natural or complicated.
   (a) Early developmental history—teething, walking, talking, etc.
4. Mention all diseases of infancy, childhood, and of maturity with particular attention to "nervous breakdowns," and to such symptoms as headaches, vomiting, vertigo, disturbances of vision, pains and paresthesias, disturbances of consciousness, convulsions, bladder trouble, constipation and disorders of sleep, including insomnia, hypersomnia, persistent "night terrors," somnambulistics, nail biting, thumb sucking, quarrelsome, suspicious, fault-finding, stubborn, obedient or difficult to govern, given to "blues," etc.
5. *General Survey of Instinctive and Emotional Equipment and Attitude.*
   Are the number of drives to activity plentiful or deficient?
   Recuperative powers from illness or fatigue.
   Are there any special lines in which training is easy and retention good?
   Amount of investigatory behavior.
   Manual dexterity.
   Particular bents and hobbies.
   Sex enlightenment—attachments, curiosities, organized sex life, unsocialized sex habits.
   Strong familial attachments or antagonisms—persistence of same. (Have parents given sympathy, stimulation and encouragement or have they lacked these?)
   Balance of emotional reactions—fear, anger, etc. Over or under emotional—specify and elaborate.
   Outlets of emotional life (day dreaming, fantasies, etc.). Has he adapted himself to reality?
6. *General Habits of Work.*
   Age of beginning work (make a chronological employment history).
   Nature and length of time spent in each position—amount of money received—reasons for leaving.
   Power of conservation of earnings and modes of expenditure.
   Rapidity and neatness of work done.

Is there a tendency to procrastination, to make excuses, adverse to extra duties? Lazy, industrious or active?
Temperamental worker.
Punctuality.
Fatigability.
Persistence of effort against difficulty.
Does he work to the limit or does he save himself?
Work dropped early or work later than regulations?
Completeness of necessary instructions. Originality, resourcefulness or routine worker.
Regressing, stationary or progressing in occupational adjustments.
Sense of responsibility and reaction to difficulties.
History of wandering or hoboing.
Date and reasons for enlistment in a branch of service.

7. *General Activity Level.*

Talkative, taciturn, slow or active in speech.
Extemporaneous speaker or awkward in this matter.
Violent or rude acts of speech.
Bursts of loud conversation or laughter.
Logical stream of talk.
Absent-minded or absorbed.
Movements or postures, gait, muscular attitude and speech awkward or graceful?
Hurried, restless, eager, phlegmatic, etc.
Does he talk of the many things he has to do, that he has left undone? Does he boast of his accomplishments?
Can he let his work rest, put it aside, or is it carried conversationally into his social life and recreations?

8. *Social Adaptability.*

History with respect to association with others (parents, wife, children, in-laws, business associates, and companions in recreation).
How many intimate friends? How long standing? Made early or later in life? Sex preferred?
How does he react to people in a new environment? How rapidly does he become settled in a new environment?
Estimate him as to tactfulness, quarrelsomeness, coöperation, etc.

Apart from any money or social status, is his society sought by others?

Is he a leader of his group and is he loyal to friends?

Does he plague or tantalize others?

Has he held positions of prominence in games, sports or social life? If so, at what period?

9. *Recreation and Sports.*

Main types of play activity, and success in these.

Is he of one sport type—possessing a single hobby (golf, poker, etc.), or is he an all-round sport?

Sacrifice of work or responsibility to sporting or recreation tendencies.

Special forms of play—chance games (cards, roulette, etc.).

10. *Sex Life.*

Freedom of speech concerning this, hesitant or anxious for discussion.

Boastful of conquests.

Obtain statement of chief events of sex life:

1. Alodescent struggle with masturbation, etc.
2. Transitions to homoerotic fixations.
3. Infatuations.
4. Age of first heterosexual experience.
5. History of sexual excesses and venereal diseases with bearing on emotional life. Are sex relations satisfactory?
6. Age at marriage; age of mate; number and sex of children (abortions, stillbirths, etc., included).
7. Illegitimate children.

History of married relationship. Has it been characterized by affection, kindness, irritability, frigidity, jealousy, fault finding, domineering attitudes, submission, avoidance or prudishness?

Has home life been established? Reaction to children?

Do husband and wife have same friends—play same games, etc.? Are they held together by social pressure or joint responsibility or by children?

Perversions of any kind.

Peculiarities with respect to certain foods and odors.

11. *Reactions to Conventional Standards.*

Truthful? Is he faithful to his word?

Frank in opinions and statements?

Trustworthiness as to money matters?

Is he observant of the rights and regulations of persons and of society?

Give history including time, place and nature of all arrests, and of any notable misdemeanors.

What are his responses to such matters as lying, stealing, cheating, falling in love with engaged or married women, murder, and suicide?

12. *Personal Bias and Peculiarities.*

Has early home, school and religious training implanted fixed modes of reacting which do not fit in with his present environment?

Is he easily shocked, *e.g.,* at seeing a woman smoke, drink, play cards or flirt? Or at risqué stories?

Has past failures in any sphere " soured " his disposition?

Is he inclined to seek sympathy or to pity himself?

Woman hates or man hates?

Do his opinions or actions rebel against social law or order?

What are his attachments to old and new things in philosopy, religion, art, music, and politics?

Boastful, proud and overbearing or timid, and sensitive or brooding?

Peculiarities in voice, gesture, gait, physical appearance; any organic defects, any organic weakness which arouses emotion when thought of or faced? Reaction in response to minor somatic ailments and injuries.

Overmeticulous regarding money matters or dirt? " Show off " with money or miserly and close?

Foppish or overdressed—lavish—beauty treatments—perfumery? or untidy with clothes?

13. *Balancing Factors.*

How in general has he reacted to difficulties that could not be foreseen or overcome?

How has he compensated for loss of position, parent, wife, child, sweetheart or friend?

How has he compensated for poor special equipment or inadequacy of training?

If never married, how compensated? If no children, how compensated?

Any converted tendencies such as recklessness, speed manias, excesses in personal habits, including dress, and the creation of exciting situations?

Have religion, church work or social work been balancing factors.

How has personal ugliness, either partial or total, been compensated for?

Has possession of money compensated for lack of breeding and social position?

Summary of Personal History.

(Emphasizing Assets and Liabilities).

D. Present Illness: (Describe type of onset, whether gradual or rapid—date—place—circumstances—its nature when first noted, etc. Give development of disorder with chronology as definite as possible.)

1a. Describe the general personal appearance of the patient, including clothing, facial expression, postures and mannerisms, etc.

1b. Determine orientation status for *time, place* and *person.*

2. Describe the stream of talk—note manner of speaking, whether retarded, free, relevant, coherent, meagre, circumstantial, incoherent or excessive or prolixity. Does there seem to be a fugacity or a tenacity of ideas as expressed in the speech? If the stream of talk is in any way unusual or characteristic in type or content, give a few examples.

3. By appropriate questions and observation ascertain the mood or attitude of mind, including accessibility, apathy, diffusion or elation, evasive or frank, and the presence of any disharmony, signs of instability or of irritability. (Relate as far as possible in the patient's own words his reason for his present state of mind; this may include his story of the onset and development of his troubles.)

4. *Hallucinations and Delusions:* (The following leading questions, indicating some of the things one should inquire into, are to serve as suggestions only, and are to be elaborated and perhaps modified to suit the case.) The replies to the questions should not be so written unless it is particularly interesting or suggestive, but a summary bringing the positive features to the foreground should be prepared at the end of this section.

1. Does everyone treat you well?
2. Was it right that you should have been sent here?
3. Is this the correct place for you?
4. Did someone have it in for you?
5. How did your companions and friends treat you?
6. Were they fair to you?
7. Has anyone followed you?
8. Has anyone watched you?
9. Were detectives after you?
10. Did anyone try to poison you?
11. Did they put things in your food?
12. Why did they wish to harm you?
13. Were the Masons or some other secret order after you?
14. Did anyone try to poison you?
15. Or put gas in your room at night?
16. How much money have you?
17. Have you committed any crimes yourself?
18. What are they?
19. Do you think your sins are unpardonable?
20. Do you ever hear strange noises?
21. What are they like—bells, hissing of steam, or what?
22. Do people speak to you or about you?
23. What do they say?
24. Do the voices call you bad names?
25. Do these voices sound natural or spiritual?
26. Are they telepathic messages?
27. Do they come from God?
28. Do you ever hear the angels speaking to you?
29. Do you smell bad odors, poisonous gases, etc.?
30. Do you smell chloroform or ether in your room?
31. Do you ever see strange things?

32. What are they like?
33. Describe them fully.
34. Do they move or stay still?
35. Are they brightly colored?
36. If they are people are their faces clearly seen?
37. What is the color of their hair?
38. What is their clothing like?
39. Do they seem to threaten you or not notice you?
40. Does your food taste peculiar?
41. Is it bitter or sour?
42. Is there any drug or dope in it?
43. Are you sure?
44. Who put it there?
45. Why?
46. How long has this been going on? (That is, how long has he been hearing, seeing, smelling and tasting these peculiar things?)
47. Do you have peculiar sensations over your body?
48. Where?
49. What are they like? Insects crawling over you?

5. Since the onset of the present illness has the patient made any homicidal, suicidal or self-mutilation attempts? Any other sadistic or masochistic trends? Has alcoholism or drug addiction developed? What religious or philosophic tendencies have recently appeared? Has masturbation become excessive? Has he shown any sex perversions?

6. Make a survey of his ward behavior since admission with particular attention to the following trends:

Restlessness	Hoarding tendencies	Destructive tendencies
Impulsiveness	Reading	Industry
Negativistic	Exposures	Games
Corresponding	Appetite	Sleep
Combativeness	Vulgarity	
Continence		

Mood { Irritable, Cheerful, Brooding, Sad, Anxious, Apprehensiveness, Weeping, Panicky, Suicidal, Disinterested, Talkative, Mute } (This information may be obtained from the examiner's personal knowledge of the patient or from consultation with nurses and attendants.)

7. Obtain if possible some idea of the nature of the patient's dream life.
   Does he remember his dreams?
   Are they "nightmares" or colorless affairs?
   Do they annoy or please the patient?
   Are they in keeping with his hallucinatory and delusional experiences?
8. *Insight:* Determine to what extent the patient realizes the nature of his disorder, and the nature of the hospital. Does he realize why he was sent to a hospital for mental disorders? Was it with his consent or against his will? Does he admit that he is ill in any way, or different than he used to be? Has he noted any changes in his thinking, memory, judgment, character, etc.? What is his present outlook on life? Does he feel that he can recover? Has he made or is he trying to make any plans for the future?

Complete summary of present illness.

THE PSYCHOLOGICAL EXAMINATION

It is assumed that there are available in the mental hospital a psychological laboratory or the services of a trained psychologist, to whom doubtful cases can be referred for complete study. The following outline is suggested as one that can be followed routinely in accessible cases, and can be applied without the aid of elaborate apparatus by the intern or other physician who is making the mental examination. The material necessary is the following:

1 set of test material for the measurement of intelligence, by Lewis M. Terman.
1 manual of directions: "The Condensed Guide," by Lewis M. Terman.
A stop-watch.
A copy of "The Measurement of Intelligence," by Lewis M. Terman, should be available for reference.

The aim of the psychological examination of abnormal cases is four-fold. It must discover

1. How much intelligence the patient can use at present.
2. What peculiarities of function he shows.
3. What is affecting function.
4. To what level he probably developed before his illness—what can be considered his normal level.

The method of the examination of abnormal cases cannot be uniform. The examiner must make himself thoroughly familiar with the standardized procedure, and then learn to vary it to suit the individual case. Time of all the timed reactions must be taken and *noted,* but the patient's actual intelligence is not judged by it; it does, however, throw light upon our first aim, *i.e.,* a patient may possess the intelligence to make a certain reaction, but cannot do it in the standardized time; he is not able to make use of the intelligence he possesses in an effective manner. Different types need different handling. Introverted precoxes must be stimulated, flighty and excited cases must find the examiner quiet and willing to listen to their ravings, bringing them back tactfully time and again to the question he wants answered; the suspicious paranoid must be reassured and so on.

The attitude and manner of the examiner are very important and he must learn how to gain as much coöperation as the patient is able to give. The examination should be conducted in a quiet place, free from interruption and distraction, except as introduced to note the patient's reaction to it. Careful notes must be made; as far as possible everything the patient says written down. For this reason it is well to allow a page of the examiner's note book to each question or situation discussed. Also the results of the examination are more easily assembled if this method is followed.

Function: The chief distinction between the normal and abnormal intelligence is in the matter of function. The normal mind

of whatever degree of intelligence functions fairly consistently upon a certain level; the abnormal mind shows peculiarities and inconsistencies. In the majority of abnormal cases there will be found considerable scattering of the reactions upon *any* measuring scale. Note the following exceptions:

1. Deteriorated cases will have few successes above the basal year, *i.e.,* the first year in which all the tests are passed, though such cases will often have partial credits, or show by their use of language, by occasional grasp of an idea or an occasional comment that they have formerly had a higher intellectual level. A patient should never be called deteriorated upon the evidence of but one examination.

2. Depressed cases may show little scattering.

3. Patients in a regression may also show little scattering, though if accessible at all the latter may usually be pulled up to some semblance of their former ability.

The functional level as indicated by a rating scale is that level on which the patient can accomplish all the tests fairly easily and within the time limits.

What is affecting function?

This is most important from the standpoint of diagnosis and often most difficult to determine. In what follows we have attempted to indicate briefly the chief things to be noted during a psychological examination and their bearing upon the point noted above.

The following must be carefully noted:

1. Quality of attention.
2. Memory.
3. Speech and language.
4. Association.
5. Effort.

I. Attention.

1. Concentration.
2. Power of sustention.
3. Flexibility—easily turning from one subject to another.
4. Difficult to obtain because of
   a. Absorption in thought or phantasy.
   b. Occupation with external matters.

5. Span—number of digits, words or ideas patient can grasp in *one* presentation.

II. Memory.

1. Rote memory.
   a. Digits.
   b. Sentences.
   c. Visual material.
2. Logical memory.
3. Immediate recall.
4. School knowledge.
5. Remote events.
6. Peculiarities.
   a. Amnesia.
   b. Hyperamnesia.
   c. Paramnesia.

Remember that except in organic cases, memory defect is usually only apparent, and we must discover if possible to what the defect is due—lack of attention, disturbing complexes, failure of effort, or lack of comprehension of the material presented.

III. Speech and Language.

1. Clear and coherent.
2. Relevant or not.
3. Meagre or excessive.
4. Circumstantial.
4. Circumlocutory.
6. Pedantic expressions, neologisms.
7. Vocabulary.

   Glibness of speech sometimes conceals a lack of ideas and the examiner must not be deceived by it. Watch especially for clearness of ideas in very fluent people.

8. Reading.
   a. Easily and fluently.
   b. Clear enunciation and proper emphasis.
   c. Does he stumble, mispronounce, omit, insert, confabulate, miscall, hesitate, elide syllables or slide over words?
   d. Any speech defect, as stammering, lisping, slurring, etc.
   e. Any aphasia.

IV. Association.
    1. Poverty or wealth.
    2. Peculiar or bizarre associations.
V. Effort.
    1. Quality and amount.
    2. Voluntary or only in response to stimulation.
    3. Fatiguing to patient or not.

In the majority of cases interest is sustained as long as little voluntary effort is necessary to sustain attention.

The examiner should not trust his memory, but make careful notes of his observations on the above points.

The Tests.

The following 12 tests are taken from the Stanford Revision of the Binet-Simon Scale. It is the best known and most generally used and these particular tests have been chosen as those most likely to give an idea of the patient's intelligence, their choice being based upon 10 years' experience in studying the intelligence of abnormal people. The examiner must familiarize himself with the method of giving and scoring these tests as found in Terman's "The Measurement of Intelligence," though as noted above, this method must be adapted for use in abnormal cases.

It will be found most convenient to write out the reactions to each test, together with the examiner's comments and observations, on a separate sheet of paper. At the close of the examination the tests can be assembled by years and placed in order from 10 on up. Where test blanks or booklets are available this is of course not necessary.

It is unnecessary to give all the tests to every case, though the beginner should do so, until he learns to pick out the types who cannot handle them.

Figures denote years on the Stanford-Binet Scale.

1. Digits forward (4—7—10—14—16—18).
2. Digits backward (7—9—10—16—18).
3. Reading and report—10.
4. Dissected sentences—12.
5. Arithmetic problems—14.
6. Absurdities—10.
7. Logical problems—14.

8. Fables—12—16.
9. Vocabulary—8—9—10—12—14—16—18.
10. 60 words—10.
11. Designs—10.
12. Ball and field—8—12.

How to Evaluate.

1. *Digits forward* represent immediate recall. Success depends largely upon attention and effort, hence the psychotic frequently fails and the man of poor intelligence with normal function often succeeds. But failure on the lower levels, 4 and 7, is infrequent and indicates either very poor intelligence or a quite active mental disturbance.

2. *Digits backward.* This is much more difficult. Success in the upper levels, 16—18, depends upon mental habits not often found except in the person of good intelligence.

3. *Reading and report.* Reading must be evaluated in the light of the patient's school attainments and familiarity with the language. Psychotic patients often read well but fail the report, because of disorders of attention.

4. *Dissected sentences.* This test is fairly difficult for people much below average intelligence. When easily and quickly passed it indicates a fairly high degree of mental control.

5. *Arithmetic problems.* So many apparently normal people fail on this test that too much weight should not be attached to failure. But watch especially for confusion of thought, for peculiar reasoning and for slips like $20 - 14 = 7$, or 16, etc.

6. *Absurdities.* This calls for good attention, quickness of comprehension and power to detect the logical absurdities implied. It is very difficult for psychotics, but defectives seldom pass it also. The reasons for failure should be discovered if possible.

7. *Logical problems.* Defectives usually fail. The task is beyond their reasoning ability.

8. *Fables.* Defectives practically never pass the test, even with 12-year credit. Good explanations with 16-year credit implies a fairly good intelligence.

9. *Vocabulary.* This is the best single test in the whole scale for adult English speaking subjects. The whole list should be given, up to 10 consecutive failures. The method of credit should be care-

fully studied. Time limits cannot be observed, though when a patient answers quickly with clear and concise definitions it implies a good intelligence, especially if he goes beyond 14-year credit.

10. *Free associations* (60 words). This test shows up very well such qualities as poverty of ideas, illogical habits of thought, blocking and retardation. Defectives seldom pass it because of the poverty of their associations. Psychotics often fail because of their lack of mental control. If possible the reason for failure should be found.

11. *Designs.* This is an excellent test. Defectives usually fail it, but the failure is of different type than in the psychotic. The latter adds lines or draws bizarre figures, though many psychotic patients reproduce it excellently. The defective forgets, or says he can't do it, or draws a simpler figure.

12. *Ball-and-field.* Give all the time the patient needs but make careful note of his remarks and his attempts at solution. Study the method of scoring carefully. Occasionally a psychotic patient has a verbal understanding of the situation but draws a confabulated figure or refuses to draw. Twelve-year credit is seldom earned by defectives.

No attempt should be made to assign a dfinite mental age on this abbreviated scale. It will be noted that all the 10-year tests are given except the comprehensions. Year 10 has been chosen because experience has shown that the majority of patients in a mental hospital will fall below 10 for a basal year. In the great majority of cases, the basal year is 8 or 9. If now a patient fails all the tests in year 10 and is not obviously psychotic, he should be referred to the psychological department for complete study, to determine if he is a mental defective, a deteriorated precox, or what not.

If he scatters through the scale, but some of his reactions are of a high order, especially in the upper levels, it is probable that he is of good intelligence, and the scattering is due to the psychotic process. There are exceptions: neurotics also scatter, as do some epileptics and occasional other types. If there is any doubt in the examiner's mind the case should be referred for further study.

If the patient passes all the tests his reactions being of high order, he is of good intelligence which is little impaired.

Whenever the examiner is in doubt as to how to evaluate a patient's intelligence, he should be referred for further study.

(For a complete discussion of the evaluation of intelligence in mental cases, see "The Intelligence of the Abnormal Mind" now in preparation.)

FORM FOR PHYSICAL EXAMINATION OF PSYCHIATRIC PATIENTS.

A. *General Appearance:*

1. Dress and general behavior.
2. Height and weight.
3. Usual posture.
4. Facial expression.

Intelligence.	Exophthalmic goiter.
Symmetry.	Anxiety.
Spasm.	Paralysis agitans.
Paralysis.	Phthisis.
Edema.	Renal disease.
Myxedema.	

5. Mode of moving.
6. Station.
7. Gait.

B. *Skin and Appendages:*

1. Color.

Pallor.	Cyanosis.
Jaundice.	Pigmentation.
Mottling.	Redness.
Bronzing.	

2. Character.

Texture.	Temperature.
Moisture.	Oedema.
Eruptions.	Gloss.
Wasting.	Subcutaneous fat.
Scars.	Abrasions and bruises.
Self-inflicted injuries.	

References:

Engmann, M. F.

The Skin a Mirror to the System. Journal Amer. Med. Assn., Vol. 73, No. 21, page 1565, November 22, 1919. (One of the best accounts yet published.)

Schaltz, M.

Psychogenic and Neurogenic Factors in Skin Diseases. Med. Rec., 100, 6, 234, August 6, 1921.

3. *Hair:*

Dryness	Amount
Distribution (particularly pubic)	Dyes
Local discoloration.	
Gloss.	

4. *Nails:*

General condition	Texture
Curved—ridged	Cyanosis.

Reference:

Rosenau, W. H.

Changes in Finger Nails After Rheumatic Fever, Tuberculosis, etc. (Excellent general survey of Anatomy and Physiology of Nails.)

C. *Supporting System:*

1. Peculiar fat distributions.
2. Muscles.

Development	Wasting
Symmetry	Tremors.
Local atrophies.	

3. Skeleton

Slender	Disproportions
Heavy	Amputations.
Deformities { congenital / acquired.	

Record deformities of the bony conformation of the skull.

Examine all joints thoroughly for swellings, distortions, mobility, thickenings, fluid, etc.

D. *Respiratory System:*

1. *Nose:*

Discharges—Obstructions.

2. Respiratory peculiarities (visible or audible).
3. Chest examination by the orthodox procedure.

E. *Circulatory System:*

1. Character of the pulse.
2. Blood Pressure—Temperature.
3. Venous distentions—Varicosities.
   Generalized—Localized.
   Cyanosis of Extremities—Hemorrhoids.
4. Edemas—Condition of lymphatic system.
5. Abnormal arterial pulsations.
   Palpation of arteries.
6. Heart examination by the orthodox procedure.

Reference:

Norris and Landis—Diseases of the Chest. Saunders, 1920.

F. *Gastro-Intestinal System:*

1. Inquire into:

Appetite	Thirst
Vomiting	Constipation
Painful defecation.	Diarrhoea

2. *Mouth, Teeth, Gums, Tongue, Pharynx, Tonsils.*
   Note: Moisture—ulcerations, herpes—deposits, inflammations and discolorations.
   Record shape of palate.
3. Examine abdomen:

Shape	Distention
Tenderness	Growths

G. *Genito-Urinary System:*

1. Peculiarities in size and conformation of the genitalia.
2. Pay special attention to size, consistency (soft or flabby or firm), and deformities of the testes.
3. Scars and abrasions.
4. Frequency of urination { nocturnal / diurnal
5. Difficulties in passing of urine.
6. Urethral discharges.
7. In females:

   (A) Vaginal examination to determine the state of the vagina, the position and size of the uterus, and the condition of the ovarian areas.

(B) The size, shape and consistency of the breasts should be especially noted in all patients, as this is of particular importance in certain mental disorders.

(C) Accurate accounts of the menstrual functions are of great importance.

H. *Glands of Internal Secretion:*

1. The physical signs of disorders of the ductless glands have been included in the above notes. They are usually manifested by abnormal growth conditions of the skeleton, muscular dystrophies, changes in the skin, hair and nails, cyanosis, etc.

2. Examine carefully and describe the thyroid areas for scars, tumescence, abnormal pulsations, etc.

I. *Nervous System:*

The following outline for neurologic examinations if carefully carried out is sufficient to ascertain the presence or absence of a neurologic condition which if discovered should be further studied by the more complete and elaborate procedure outlined in many of the well known textbooks and guides in neurology.

It will be well for beginners to consult:

Hunt: Diagnostic Symptoms in Nervous Disease. Saunders, 1914.

Bing: Text Book of Neurology.

Jelliffe and White: Text Book of Nervous and Mental Diseases. Lea & Febiger, 1929.

Monrad-Krohn: Clinical Examination of the Nervous System. New York: Paul B. Hoeber, Inc., 1926.

Notes on Neurologic History Taking:

I. In taking the anamnesis on neurologic cases in addition to other things one should pay particular attention to any history of headache, vomiting, vertigo, disturbance of vision, pains and paraesthesias, disturbance of consciousness, convulsive fits, bladder trouble, constipation and disorders of sleep including insomnia and hypersomnia.

II. The beginner should first complete his neurologic examination of the body before attempting or even thinking of the possible focal diagnosis or of the probable pathology at the basis of the

disorder. These neurologic facts should be placed on the right and left sides of a line drawn through a sheet of paper, each side containing the findings on the right and left side of the body respectively.

After this has been done the findings may be analyzed according to our knowledge of anatomy and physiology and thus a possible focal diagnosis of the lesion may be made.

After this has been attempted one may determine or at least speculate on the nature of the lesion according to our knowledge of pathology.

III. In examining into the mental condition of neurologic cases as such the following factors should be placed in the foreground as some disturbance of these is characteristically associated with organic lesions of the central nervous system.

1. Attention
2. Perception
3. Orientation for time and place
4. Memory
5. Emotional status
6. Volitional functions

1. *Pain:*
   Location
   Distribution
   Relation to rest, motion and sleep
   Character (sharp, dull, shooting, boring or gnawing)
   Frequency (constant, interrupted, spasmodic)
   General tenderness—Manner of statement

2. *Sensory Disturbances:*
   Anaesthesias—Hyperaesthesias and Paraesthesias—Feelings of unreality—Electricity. Frequency, location, severity and general character of numb sensations.
   Romberg phenomena.

3. *Motor or paralytic disturbance:*
   Duration of symptoms.
   Location—Distributions, Character.
   Sudden or gradual onset.
   Degree of incapacity occasioned.
   Examine reflexes and coördination by the usual methods.

4. *Convulsions:*

Prodromal symptoms—Exact nature of the unconsciousness—Character of the breathing—Position and movements of the patient—Color of the face—Frothing at the mouth—Voiding of urine—Cries—Frequency of attacks (increasing or decreasing).

5. *Sphincter control:*

(Bladder and Rectum).

Overflow—Incontinence—retention. Ancient or recent development. Is patient cognizant of desire to evacuate?

6. *Eyes:*

(a) Prominence of eyeballs.

(b) Ptosis.

(c) Pupils—Equality—Size
Symmetry
Reaction to light and accommodation.

(d) Conjunctiva—Color
Ecchymoses
Exudates.

(e) Cornea—Transparency—Ulcers
Arcus Senilis—Leucoma.

(f) It is highly desirable that the majority of patients be given an ophthalmoscopic examination to ascertain the condition of the retinal structures and vessels. This is extremely valuable in cases of suspected intracranial pressure.

7. *Ears:*

Examine for shape—discharges, tophi and scars.

In this connection Chapter 2, Part 2, in Church and Peterson: Text Book of Nervous and Mental Diseases, is of interest.

LABORATORY REACTIONS:

Summarize positive Physical and Laboratory Findings.

INDEX

This index was written with a view to its use as a **Glossary.** Technical psychiatric terms used in the text appear here, and by reference to the pages indicated their meaning will be found.

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